

PAEDs

Paediatric Anaesthetic Emergency Data sheets

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AGE : TERM

	Wt : 3 – 3.5 kg		HR : 110 – 160		RR : 30 – 40		Systolic BP : 70 – 80
	OP Airway : Size : 000			ET Tube :		2.5 - 3.0 3.0 - 3.5 9 – 10 cm	
	LMA : Size : 1			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	20 J	Adrenaline	IV – Arrest (10 microgram/kg)	0.4 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	100 microgram (min)		IM- Anaphylaxis (10 microgram/kg)	0.4 mL (1 in 10,000)		
	Amiodarone (5 mg/kg)	18 mg (0.6 mL of minijet)		Nebulised – Croup (400 microgram/kg)	1.4 mL (1 in 1,000)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	35 mL 70 mL	Blood, FFP or Platelets (10 mL/kg)	35 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		7 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	4 – 8 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (3.5 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		3 – 15 mg		0.3 – 1.5 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		7 mg		0.7 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		4 - 7 microgram		0.4 – 0.7 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		0.3 mg (Repeat PRN)		0.3 mL
	Paracetamol IV (10 mg/kg)		NEAT (10 mg/mL)		35 mg		3.5 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		7 mg		0.7 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		3.5 mg		0.35 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		2 mg		0.2 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		50 mg		0.5 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		50 mg		0.5 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		0.7 mL		0.7 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		2 – 6 mL/hr		
	Morphine (10-40 microgram/kg/hr)		3.5 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		21 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		1 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 3 months

	Wt : 4 – 6 kg		HR : 110 – 160		RR : 30 – 40		Systolic BP : 70 – 80
	OP Airway : Size : 00			ET Tube :		2.5 – 3.0 3.0 – 3.5 11 cm	
	LMA : Size : 1			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	20 J	Adrenaline	IV – Arrest (10 microgram/kg)	0.5 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	110 microgram		IM- Anaphylaxis (10 microgram/kg)	0.5 mL (1 in 10,000)		
	Amiodarone (5 mg/kg)	28 mg (0.6 mL of minijet)		Nebulised – Croup (400 microgram/kg)	2.2 mL (1 in 1,000)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	55 mL 110 mL	Blood, FFP or Platelets (10 mL/kg)	55 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		12 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	7 – 14 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (5.5 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		5 – 20 mg		0.5 – 2 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		10 mg		1 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		5 – 10 microgram		0.5 – 1 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		0.5 mg (Repeat PRN)		0.5 mL
	Paracetamol IV (10 mg/kg)		NEAT (10 mg/mL)		55 mg		5.5 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		10 mg		1 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		5 mg		0.5 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		2.5 mg		0.25 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		90 mg		0.9 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		80 mg		0.8 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		1.1 mL		1.1 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		2 – 6 mL/hr		
	Morphine (10-40 microgram/kg/hr)		5.5 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		30 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		1.5 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 6 months

Wt :	6 – 8 kg	HR :	110 – 160	RR :	30 – 40	Systolic BP :	70 – 90
AIRWAY	OP Airway : Size : 000		ET Tube :				
	LMA : Size : 1.5		Diameter : Cuffed: Uncuffed: Length (Oral) :		3.0 3.5 12 cm		
CARDIAC	Defibrillation (4 J/kg)	30 J	Adrenaline	IV – Arrest (10 microgram/kg)	0.7 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	140 microgram		IM- Anaphylaxis (10 microgram/kg)	0.7 mL (1 in 10,000)		
	Amiodarone (5 mg/kg)	35 mg (1.2 mL of minijet)		Nebulised – Croup (400 microgram/kg)	2.8 mL (1 in 1,000)		
FLUIDS	Crystalloids : Trauma (10 mL/kg): Other (20 mL/kg) :		70 mL 140 mL	Blood, FFP or Platelets (10 mL/kg)	70 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		14 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	9 – 18 mL (0.5 g/kg = 2.5 mL/kg)		
DRUGS	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (7 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		7 – 30 mg		0.7 – 3 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		15 mg		1.5 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		7 – 15 microgram		0.7 – 1.5 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		0.7 mg (Repeat PRN)		0.7 mL
	Paracetamol IV (10 mg/kg)		NEAT (10 mg/mL)		70 mg		7 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		14 mg		1.4 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		7 mg		0.7 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		4 mg		0.4 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		120 mg		1.2 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		100 mg		1 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		1.4 mL		1.4 mL
INFUSIONS	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		3 – 8 mL/hr		
	Morphine (10-40 microgram/kg/hr)		7 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		42 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		2 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 9 months

Wt :	7 – 9 kg	HR :	110 – 160	RR :	30 – 40	Systolic BP :	70 – 90
AIRWAY	OP Airway : Size : 00		ET Tube :				
	LMA : Size : 1.5		Diameter : Cuffed: Length (Oral) : Uncuffed:		3.5 3.5 – 4.0 12 cm		
CARDIAC	Defibrillation (4 J/kg)	30 J	Adrenaline	IV – Arrest (10 microgram/kg)	0.8 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	170 microgram		IM- Anaphylaxis (10 microgram/kg)	0.8 mL (1 in 10,000)		
	Amiodarone (5 mg/kg)	43 mg (1.4 mL of minijet)		Nebulised – Croup (400 microgram/kg)	3.4 mL (1 in 1,000)		
FLUIDS	Crystalloids : Trauma (10 mL/kg): Other (20 mL/kg) :		85 mL 170 mL	Blood, FFP or Platelets (10 mL/kg)	85 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		17 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	10 – 20 mL (0.5 g/kg = 2.5 mL/kg)		
DRUGS	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (8.5 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		8.5 – 35 mg		1 – 3.5 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		17 mg		1.7 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		10 – 20 microgram		1 – 2 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		0.8 mg (Repeat PRN)		0.8 mL
	Paracetamol IV (10 mg/kg)		NEAT (10 mg/mL)		85 mg		8.5 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		17 mg		1.7 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		8 mg		0.8 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		4 mg		0.4 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		130 mg		1.3 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		120 mg		1.2 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		1.7 mL		1.7 mL
INFUSIONS	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		3 – 10 mL/hr		
	Morphine (10-40 microgram/kg/hr)		8.5 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		50 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		2.5 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 1 year

	Wt : 9 – 10 kg		HR : 100 – 150		RR : 25 – 35		Systolic BP : 80 – 95
	OP Airway : Size : 00 – 0			ET Tube :		3.5 4.5 12.5 cm	
	LMA : Size : 2			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	50 J	Adrenaline	IV – Arrest (10 microgram/kg)		1.0 mL (1 in 10,000)	
	Atropine (20 microgram/kg)	200 microgram		IM- Anaphylaxis (10 microgram/kg)		1.0 mL (1 in 10,000)	
	Amiodarone (5 mg/kg)	50 mg (1.7 mL of minijet)		Nebulised – Croup (400 microgram/kg)		4.0 mL (1 in 1,000)	
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	100 mL 200 mL	Blood, FFP or Platelets (10 mL/kg)		100 mL	
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		20 mL	Mannitol 20 % (0.25 - 0.5 g/kg)		12 – 25 mL (0.5 g/kg = 2.5 mL/kg)	
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (10 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		10 – 40 mg		1 – 4 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		20 mg		2 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		10 – 20 microgram		1 – 2 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		1 mg (Repeat PRN)		1 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		150 mg		15 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		20 mg		2 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		10 mg		1 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		5 mg		0.5 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		150 mg		1.5 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		150 mg		1.5 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		2 mL		2 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		4 – 12 mL/hr		
	Morphine (10-40 microgram/kg/hr)		10 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		60 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		3 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 18 months

	Wt : 10 – 11 kg		HR : 100 – 150		RR : 25 – 35		Systolic BP : 80 – 95
	OP Airway : Size : 00 – 0			ET Tube :		3.5 4.5 12.5 – 13 cm	
	LMA : Size : 2			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	50 J	Adrenaline	IV – Arrest (10 microgram/kg)		1.1 mL (1 in 10,000)	
	Atropine (20 microgram/kg)	220 microgram		IM- Anaphylaxis (10 microgram/kg)		0.11 mL (1 in 1,000)	
	Amiodarone (5 mg/kg)	55 mg (1.8 mL of minijet)		Nebulised – Croup (400 microgram/kg)		4.4 mL (1 in 1,000)	
	Crystalloids : Trauma (10 mL/kg): Other (20 mL/kg) :		110 mL 220 mL	Blood, FFP or Platelets (10 mL/kg)		110 mL	
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		22 mL	Mannitol 20 % (0.25 - 0.5 g/kg)		14 – 28 mL (0.5 g/kg = 2.5 mL/kg)	
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (11 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		10 – 45 mg		1 – 4.5 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		25 mg		2.5 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		10 – 20 microgram		1 – 2 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		1 mg (Repeat PRN)		1 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		165 mg		16.5 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		22 mg		2.2 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		10 mg		1 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		5 mg		0.5 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		170 mg		1.7 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		160 mg		1.6 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		2.2 mL		2.2 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		4 – 12 mL/hr		
	Morphine (10-40 microgram/kg/hr)		11 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		60 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		3 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 2 years

	Wt : 11 – 12 kg		HR : 95 – 140		RR : 25 – 30		Systolic BP : 80 - 100
	OP Airway : Size : 0 – 1			ET Tube :		4.0 5.0 13 cm	
	LMA : Size : 2			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	50 J	Adrenaline	IV – Arrest (10 microgram/kg)	1.2 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	240 microgram		IM- Anaphylaxis (10 microgram/kg)	0.12 mL (1 in 1,000)		
	Amiodarone (5 mg/kg)	60 mg (2.0 mL of minijet)		Nebulised – Croup (400 microgram/kg)	4.8 mL (1 in 1,000)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	120 mL 240 mL	Blood, FFP or Platelets (10 mL/kg)	120 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		24 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	15 – 30 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (12 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		12 – 50 mg		1.2 – 5 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		25 mg		2.5 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		12 – 25 microgram		1.2 – 2.5 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		1.2 mg (Repeat PRN)		1.2 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		180 mg		18 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		24 mg		2.4 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		12 mg		1.2 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		6 mg		0.6 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		200 mg		2 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		180 mg		1.8 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		2.4 mL		2.4 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		4 – 14 mL/hr		
	Morphine (10-40 microgram/kg/hr)		12 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		72 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		3.6 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 4 years

	Wt : 14 – 16 kg		HR : 95 – 150		RR : 25 – 30		Systolic BP : 80 - 100
	OP Airway : Size : 1			ET Tube :			
	LMA : Size : 2			Diameter : Cuffed: 4.5 Uncuffed: 5.5 Length (Oral) : 14 cm			
	Defibrillation (4 J/kg)	70 J	Adrenaline	IV – Arrest (10 microgram/kg)	1.6 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	320 microgram		IM- Anaphylaxis (10 microgram/kg)	0.16 mL (1 in 1,000)		
	Amiodarone (5 mg/kg)	80 mg (2.7 mL of minijet)		Nebulised – Croup (400 microgram/kg)	5.0 mL (1 in 1,000)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	160 mL 320 mL	Blood, FFP or Platelets (10 mL/kg)	160 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		32 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	20 – 40 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (16 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		15 – 65 mg		1.5 – 6.5 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		30 mg		3 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		15 – 30 microgram		1.5 – 3 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		1.5 mg (Repeat PRN)		1.5 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		240 mg		24 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		30 mg		3 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		15 mg		1.5 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		10 mg		1 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		250 mg		2.5 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		240 mg		2.4 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		3.2 mL		3.2 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		6 – 18 mL/hr		
	Morphine (10-40 microgram/kg/hr)		16 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		96 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		4.5 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 6 years

	Wt : 20 – 25 kg		HR : 80 – 120		RR : 20 – 25		Systolic BP : 90 - 110
	OP Airway : Size : 1			ET Tube :		5.0 6.0 15 cm	
	LMA : Size : 2.5			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	100 J	Adrenaline	IV – Arrest (10 microgram/kg)	2.5 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	500 microgram		IM- Anaphylaxis (10 microgram/kg)	0.25 mL (1 in 1,000)		
	Amiodarone (5 mg/kg)	125 mg (4.2 mL of minijet)		Nebulised – Croup (400 microgram/kg)	5.0 mL (1 in 1,000) (max)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	250 mL 500 mL	Blood, FFP or Platelets (10 mL/kg)	250 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		50 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	30 – 63 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (25 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		25 – 100 mg		2.5 – 10 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		50 mg		5 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		20 – 50 microgram		2.5 – 5 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		2.5 mg (Repeat PRN)		2.5 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		380 mg		38 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		50 mg		5 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		25 mg		2.5 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		13 mg		1.3 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		400 mg		4 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		380 mg		3.8 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		5 mL		5 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		10 – 30 mL/hr		
	Morphine (10-40 microgram/kg/hr)		25 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		150 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		7.5 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

AGE : 8 years

	Wt : 25 – 31 kg		HR : 80 – 120		RR : 20 – 25		Systolic BP : 90 - 110
	OP Airway : Size : 1 – 2			ET Tube :		5.5 6.5 16 cm	
	LMA : Size : 3			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	125 J	Adrenaline	IV – Arrest (10 microgram/kg)	3.0 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	600 microgram (max)		IM- Anaphylaxis (10 microgram/kg)	0.3 mL (1 in 1,000)		
	Amiodarone (5 mg/kg)	150 mg (5.0 mL of minijet)		Nebulised – Croup (400 microgram/kg)	5.0 mL (1 in 1,000) (max)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	300 mL 600 mL	Blood, FFP or Platelets (10 mL/kg)	300 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		60 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	38 – 75 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (30 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		30 – 120 mg		3 – 12 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		60 mg		6 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		30 – 60 microgram		3 – 6 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		3 mg (Repeat PRN)		3 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		450 mg		45 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		60 mg		6 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		30 mg		3 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		15 mg		1.5 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		500 mg		5 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		450 mg		4.5 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		6 mL		6 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		12 – 36 mL/hr		
	Morphine (10-40 microgram/kg/hr)		30 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		180 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		9 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

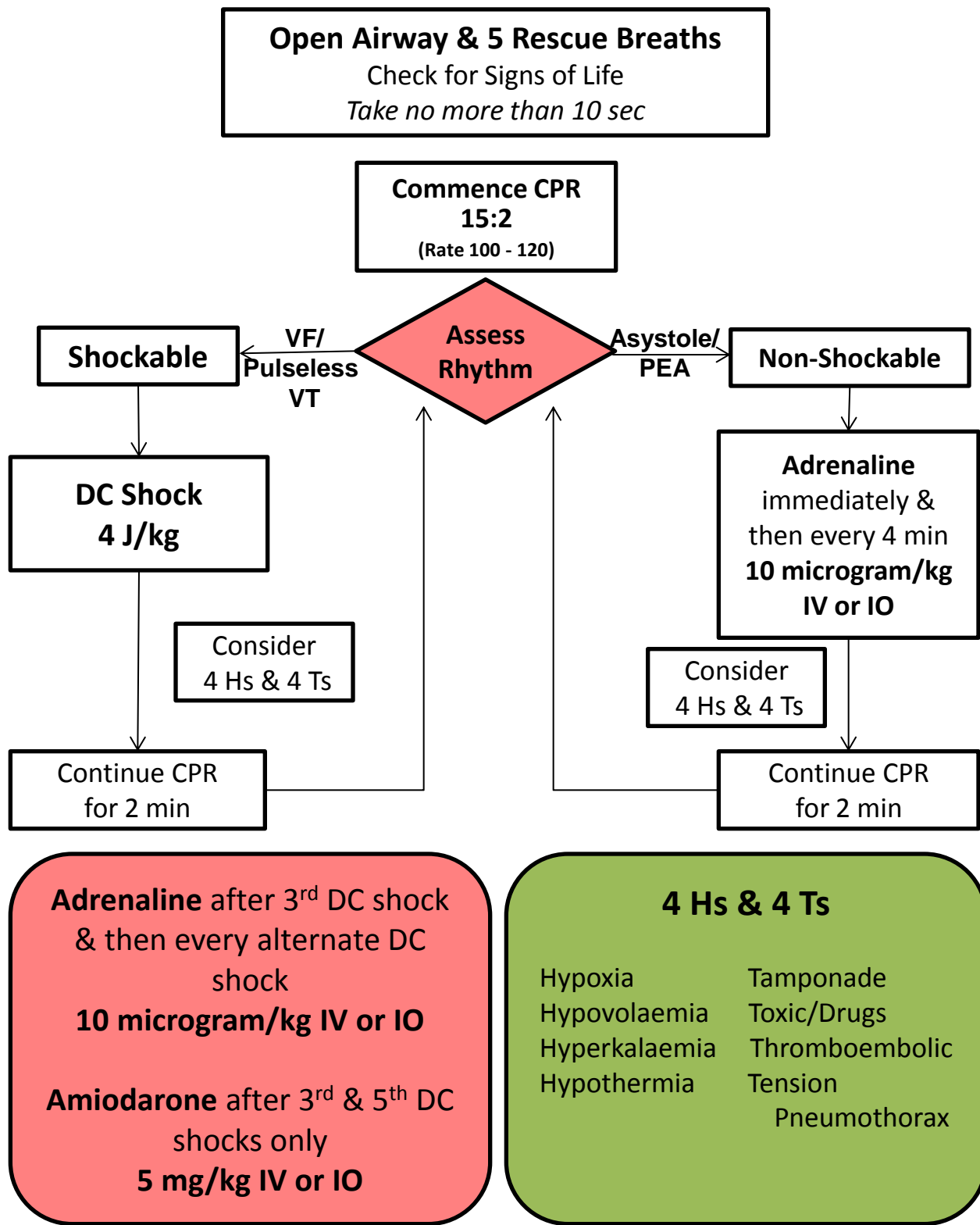
AGE : 10 years

	Wt : 30 – 37 kg		HR : 80 – 120		RR : 20 – 25		Systolic BP : 90 - 110
	OP Airway : Size : 2 – 3			ET Tube :			
	LMA : Size : 3			Diameter : Cuffed: Uncuffed: Length (Oral) :		6.0 7.0 17 cm	
	Defibrillation (4 J/kg)	150 J	Adrenaline	IV – Arrest (10 microgram/kg)	3.7 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	600 microgram (max)		IM- Anaphylaxis (10 microgram/kg)	0.37 mL (1 in 1,000)		
	Amiodarone (5 mg/kg)	175 mg (5.8 mL of minijet)		Nebulised – Croup (400 microgram/kg)	5.0 mL (1 in 1,000) (max)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	370 mL 740 mL	Blood, FFP or Platelets (10 mL/kg)	370 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		70 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	45 – 90 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (35 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		35 – 140 mg		3.5 – 14 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		70 mg		7 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		35 – 70 microgram		3.5 – 7 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		3.5 mg (Repeat PRN)		3.5 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		520 mg		52 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		70 mg		7 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		35 mg		3.5 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		18 mg		1.8 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		550 mg		5.5 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		520 mg		5.2 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		7 mL		7 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		14 – 42 mL/hr		
	Morphine (10-40 microgram/kg/hr)		30 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		180 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		9 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

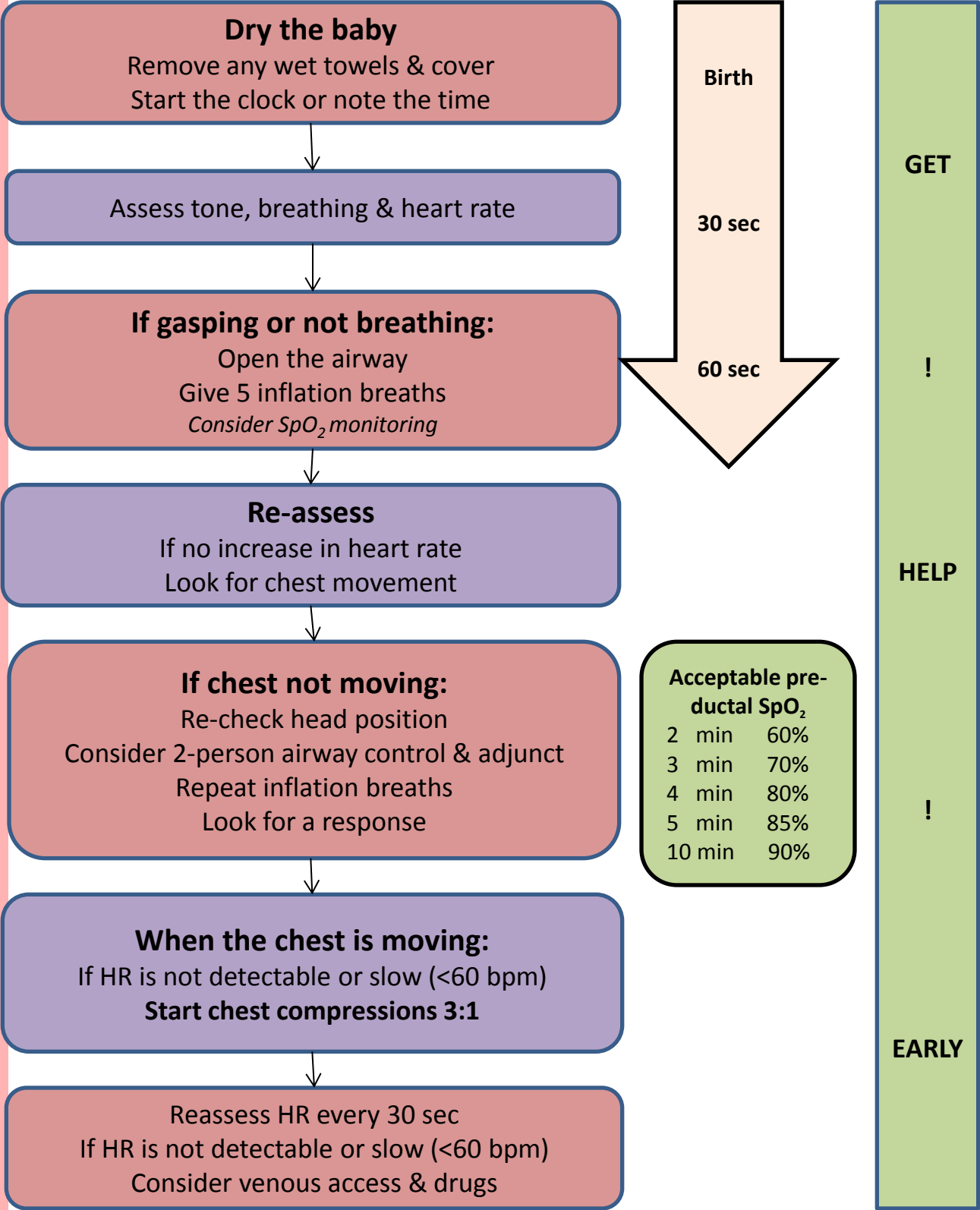
AGE : 12 years

	Wt : 25 – 43 kg		HR : 60 – 100		RR : 15 – 20		Systolic BP : 100-120
	OP Airway : Size : 3 – 4			ET Tube :		6.5 7.5 18 cm	
	LMA : Size : 3			Diameter : Cuffed: Uncuffed: Length (Oral) :			
	Defibrillation (4 J/kg)	175 J	Adrenaline	IV – Arrest (10 microgram/kg)	4.0 mL (1 in 10,000)		
	Atropine (20 microgram/kg)	600 microgram (max)		IM- Anaphylaxis (10 microgram/kg)	0.4 mL (1 in 1,000)		
	Amiodarone (5 mg/kg)	200 mg (6.7 mL of minijet)		Nebulised – Croup (400 microgram/kg)	5.0 mL (1 in 1,000) (max)		
	Crystalloids :	Trauma (10 mL/kg): Other (20 mL/kg) :	400 mL 800 mL	Blood, FFP or Platelets (10 mL/kg)	400 mL		
	10% Dextrose : (Hypoglycaemia) (2 mL/kg)		80 mL	Mannitol 20 % (0.25 - 0.5 g/kg)	50 – 100 mL (0.5 g/kg = 2.5 mL/kg)		
	Drug (Dose)		Neat or Dilution (mg/mL)		Calculated Dose (40 kg)		Volume to be given (mL)
	Propofol (1-4 mg/kg)		NEAT (10 mg/mL)		40 – 160 mg		4 – 16 mL
	Ketamine IV (2 mg/kg)		NEAT (10 mg/mL)		80 mg		8 mL
	Fentanyl (1-2 microgram/kg)		Dilute to 10 microgram/mL		40 – 80 microgram		4 – 8 mL
	Morphine (0.1 mg/kg)		Dilute to 1 mg/mL		4 mg (Repeat PRN)		4 mL
	Paracetamol IV (15 mg/kg)		NEAT (10 mg/mL)		600 mg		60 mL
	Suxamethonium (2 mg/kg)		Dilute to 10 mg/mL		80 mg		8 mL
	Rocuronium (1 mg/kg)		NEAT (10 mg/mL)		40 mg		4 mL
	Atracurium (0.5 mg/kg)		NEAT (10 mg/mL)		20 mg		2 mL
	Sugammadex (16 mg/kg)		NEAT (100 mg/mL)		650 mg		6.5 mL
	Tranexamic Acid (15 mg/kg)		NEAT (100 mg/mL)		600 mg		6 mL
	10% Calcium Chloride (0.2 mL/kg)		NEAT		8 mL		8 mL
	Drug		To Make Up in 50mL		Infusion Rate		
	Propofol (4-12 mg/kg/hr)		NEAT (10 mg/mL)		16 – 48 mL/hr		
	Morphine (10-40 microgram/kg/hr)		40 mg (1 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 20 microgram/kg/hr)		
	Midazolam (60-240 microgram/kg/hr)		240 mg (6 mg/kg)		0.5 – 2 mL/hr (1 mL/hr = 120 microgram/kg/hr)		
	Noradrenaline / Adrenaline (0.01 - 0.5 microgram/kg/min)		12 mg (0.3 mg/kg) in 5% Dextrose		0.1 – 5 mL/hr (1 mL/hr = 0.1 microgram/kg/min)		

PAEDIATRIC CARDIAC ARREST ALGORITHM

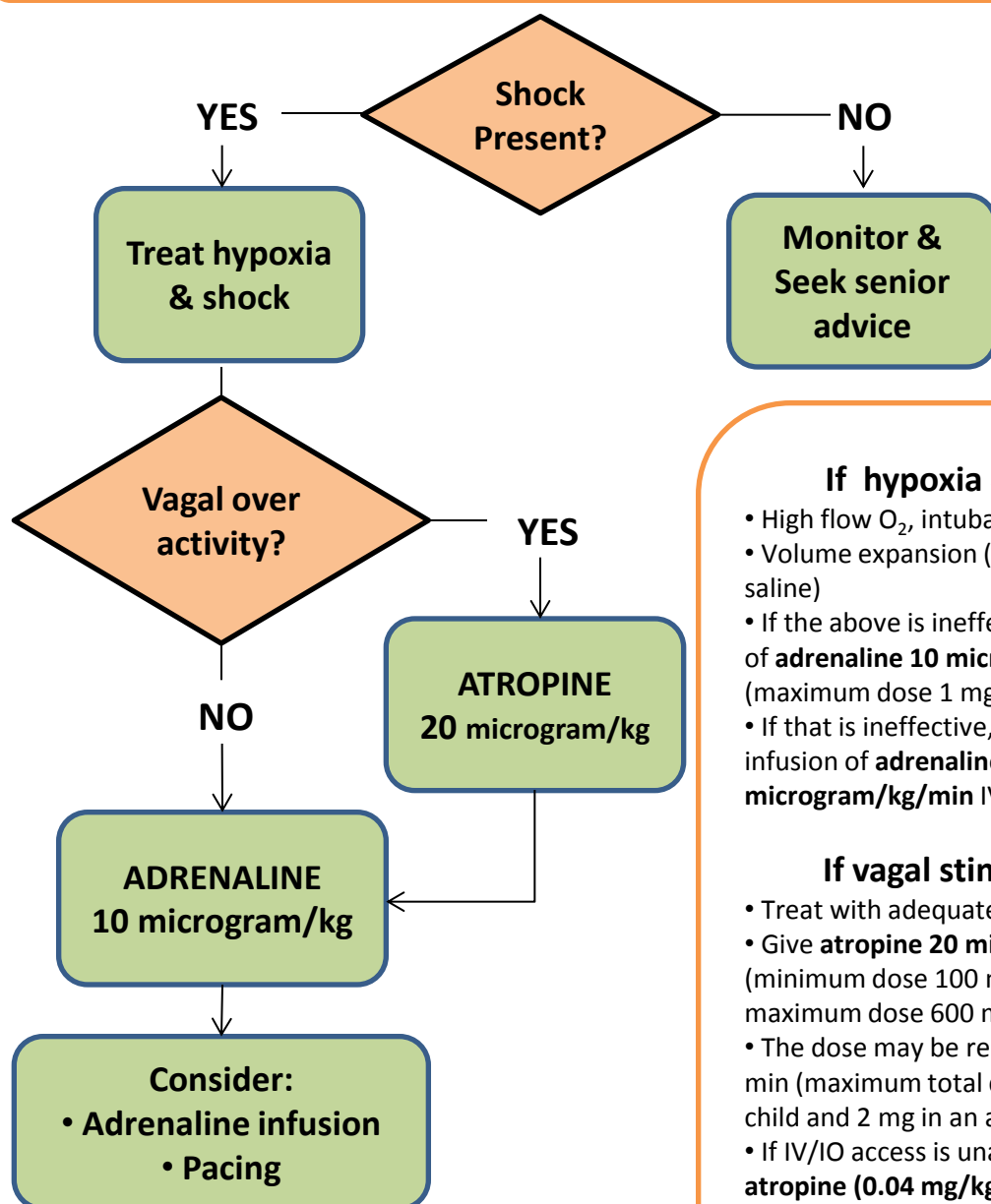


NEWBORN CARDIAC ARREST ALGORITHM



MANAGEMENT OF BRADY ARRHYTHMIAS

Bradycardia = HR <60 bpm or a rapidly falling HR with poor systemic perfusion



If hypoxia & shock:

- High flow O₂, intubation & ventilate
- Volume expansion (20 mL/kg 0.9% saline)
- If the above is ineffective give a bolus of **adrenaline 10 microgram/kg IV** (maximum dose 1 mg)
- If that is ineffective, commence an infusion of **adrenaline 0.05 – 2 microgram/kg/min IV**

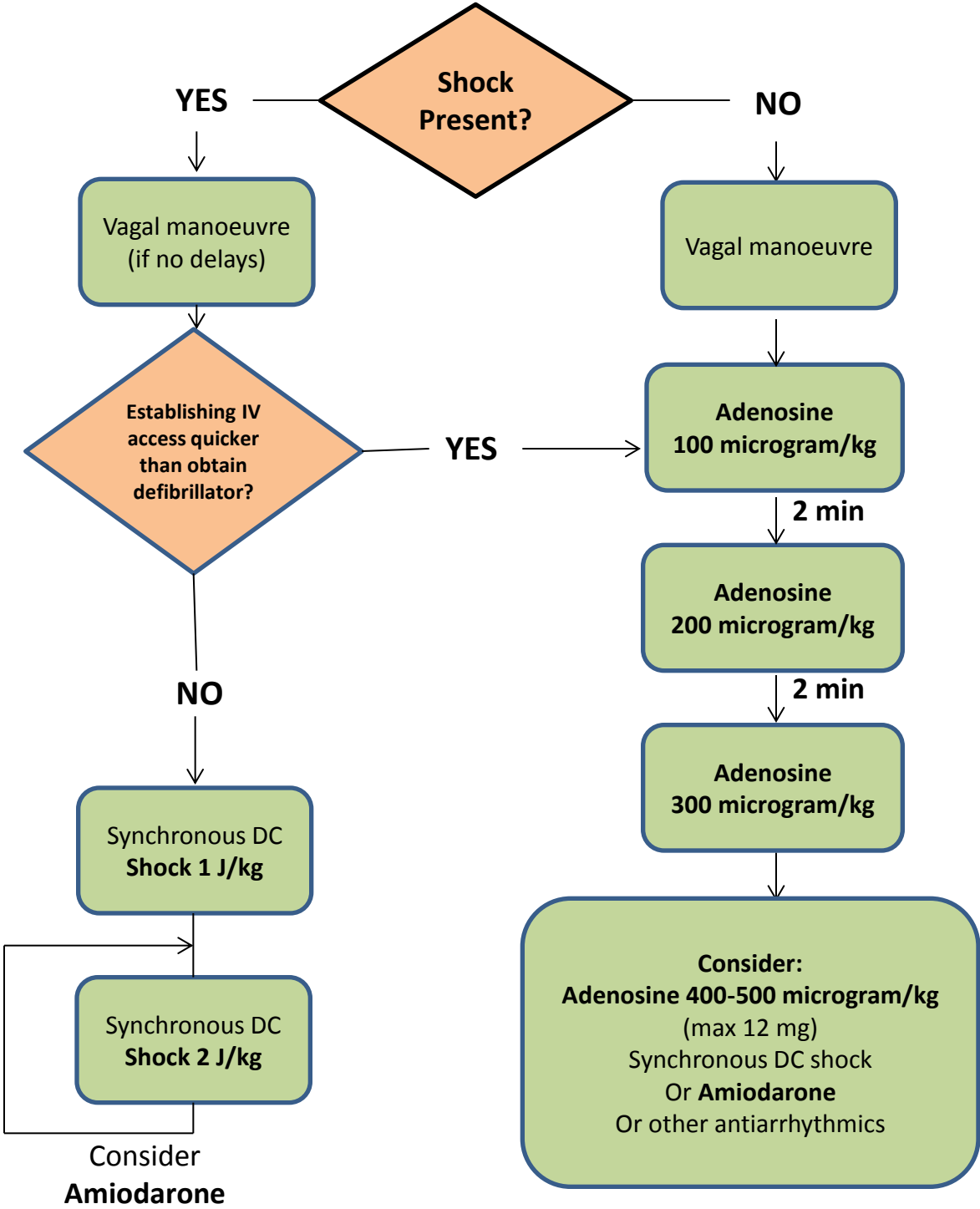
If vagal stimulation:

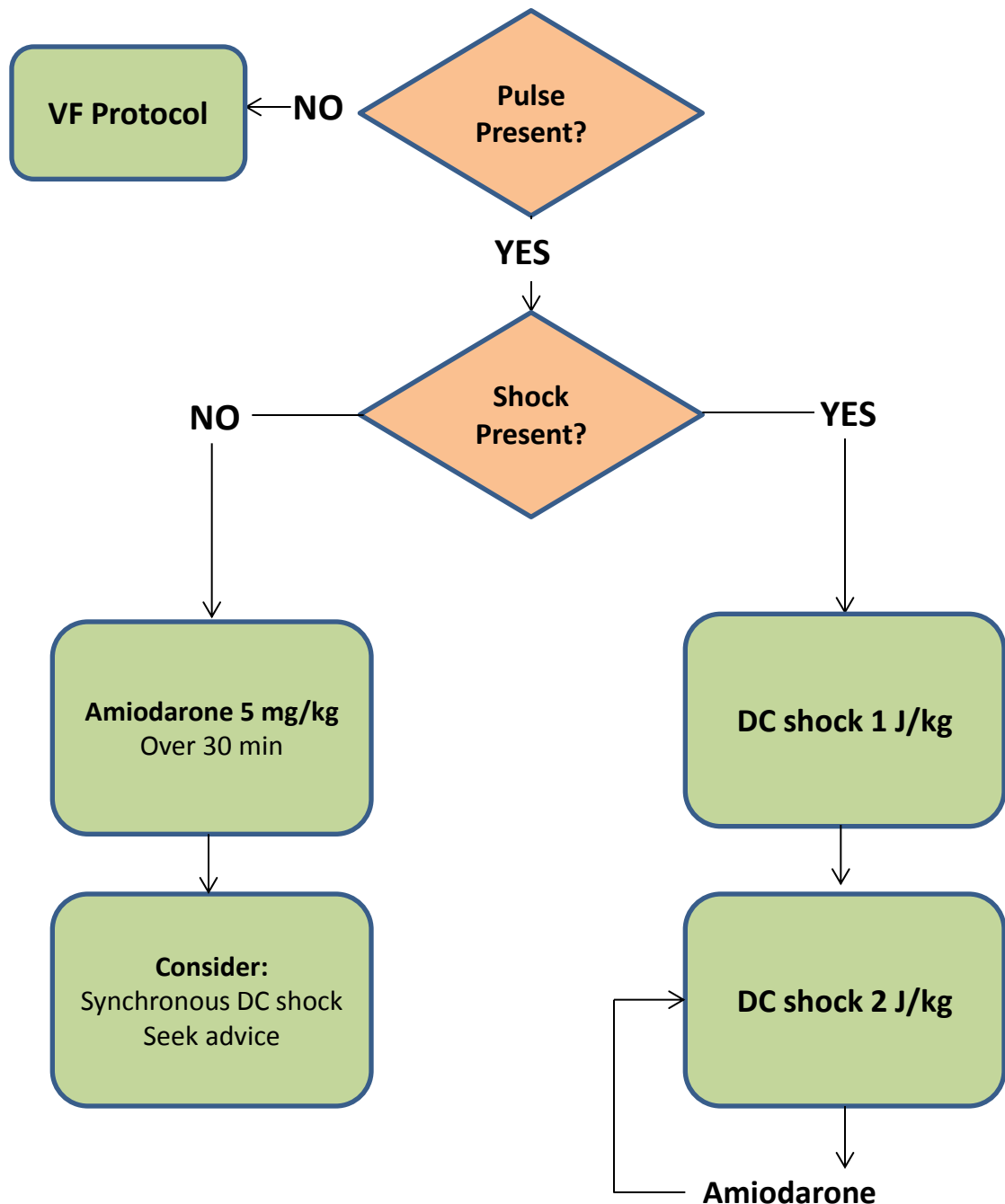
- Treat with adequate ventilation.
- Give **atropine 20 microgram/kg IV/IO** (minimum dose 100 micrograms maximum dose 600 micrograms)
- The dose may be repeated after 5 min (maximum total dose of 1 mg in a child and 2 mg in an adolescent).
- If IV/IO access is unavailable, **atropine (0.04 mg/kg)** may be administered **tracheally**, although absorption into the circulation may be unreliable

If poisoning, seek expert toxicology help

MANAGEMENT OF SVT

SVT in infants generally produces an HR > 220 bpm, and often 250 – 300 bpm



MANAGEMENT OF VT**Consider the following causes:**

- Congenital heart disease
- Poisoning with tricyclic antidepressants, procainamide or quinidine
- Renal disease or another cause of hyperkalaemia
- Long QT syndrome

PERI-ARREST DRUGS (1)

INDICATION	ROUTE	AGE/WEIGHT	CAUTION
ADENOSINE Antiarrhythmic to terminate SVT & to elucidate mechanism of tachycardia	IV bolus	Birth -12 yrs 100 microgram/kg Increase after 2 min to 200 microgram/kg then 300 microgram/kg	12-18 yrs 3 mg 6 mg 12 mg Heart block Sick sinus Asthma Prolonged QT
ADRENALINE CPR	IV bolus	1 mth - 12 yrs 10 microgram/kg	12-18 yrs 1 mg
Low CO	IV infusion	0.01 - 1 microgram/kg/min	
AMIODARONE Arrhythmias	IV loading dose	Birth – 18 years 5 mg/kg over 20-30 min (max dose 300 mg) (if CPR give over 3 min)	
	IV infusion	300 microgram/kg/hr (max 1.5 mg/kg/hr as needed) In 5% glucose only	Do not exceed 1.2g in 24 hours
ATROPINE Pre-intubation dose or bradycardia induced by vagal stimulation	IV bolus	Birth-1mth 15 microgram/kg	1 mth-12yrs 20 microgram/kg 12-18 yrs 300 microgram-1mg (min 100 microgram max 600 microgram)
CALCIUM GLUCONATE CPR when there is electrolyte disturbance or septicaemia where there is hypocalcaemia	IV bolus	Birth-18yrs 0.3 mL/kg of 10% solution Max dose 20 mL (4.5 mmol)	Tissue damage if extravasate
FLECAINIDE Treatment of resistant re-entry SVT, VEs or VT	IV bolus	Birth-18yrs 2 mg/kg over 10 min Max dose 150 mg	Avoid in pre-existing Heart Block

PERI-ARREST DRUGS (2)

INDICATION	ROUTE	AGE/WEIGHT		CAUTION
FLUMAZENIL Reversal of acute benzodiazepine overdose	IV bolus	Birth - 12yrs 10 microgram/kg max 200 microgram (repeat as needed, up to 5 times)	12-18yrs 200 microgram	Limited experience of use in children
LIDOCAINE Antiarrhythmic VF or pulseless VT	IV bolus	Birth-12yrs 1 mg/kg max 100 mg Repeat every 5 min to a maximum dose of 3 mg/kg	12-18yrs 50-100 mg	
MAGNESIUM SULPHATE Treatment of torsades de pointes	IV bolus	Birth-1mth Not Recommended	1mth-18yrs 0.1 – 0.2 mmol/kg max 8 mmol	
NALOXONE Reversal of opioid overdose	IV bolus IV infusion	Birth -12yrs 100 microgram/kg Then if no response repeat same dose at 1 minute intervals to maximum dose 2mg. Rate may be set at 60% of the initial resuscitative intravenous injection dose per hour (dose that maintained spontaneous ventilation for 15 minutes)	12-18yrs 400 microgram dose Then 800 micrograms if required at 1 minute intervals x 2 Then increase to 2mg for 1 dose if required	
SODIUM BICARBONATE Prolonged cardiac arrest Metabolic Acidosis Renal hyperkalaemia	Slow IV	Birth-18yrs 1 mL/kg of 8.4% Followed by 0.5 mL/kg of 8.4% if needed 1-2 mmol/kg 1 mmol/kg		

TREATMENT OF HYPERKALAEMIA ($K^+ > 6.5$)

If arrhythmia: **0.5 mL/kg 10% Calcium Gluconate** (max 20 mL)

Normal ECG: **2.5 – 10 mg Nebulised Salbutamol** & Repeat serum K^+

If K^+ falling:

- **1 g/kg Calcium Resonium** PO/PR & plan dialysis if necessary

If K^+ remains high:

- Assess pH: <7.34
>7.35

1-2 mL/kg 8.4% Sodium Bicarbonate & Repeat serum K^+
5 mL/kg/hr 10% Glucose & **0.05 units/kg/hr Insulin**
(5 units/kg Insulin in 50 mL 0.9% saline. 1 mL/hr = 0.1 units/kg/hr)

MANAGEMENT OF MASSIVE HAEMORRHAGE

Definition of Massive Haemorrhage

- Ongoing severe bleeding & received 20 mL/kg Red Cells or 40 mL/kg of any fluid in preceding hour
- Signs of Hypovolaemia +/- coagulopathy

Transfusion Packs

Pack 1

Red Cells 20 mL/kg
(Group specific if possible or O Rh D negative)

Pack 2

Red Cells 40 mL/kg
FFP 15 mL/kg
Platelets 15 mL/kg
Cryoprecipitate 15 mL/kg

Pack 3

Red Cells 40 mL/kg
FFP 15 mL/kg
Platelets 15 mL/kg
Cryoprecipitate 15 mL/kg

Blood Product Dosing

Red cells 10-20 mL/kg
FFP / Octaplas 10-20 mL/kg
Platelets 10-20 mL/kg
Cryo 5-10 mL/kg

Transfusion Targets

Hb: 8 - 10 g/dL
Platelets: > 75 x 10⁹/L
PT/PTT: < 1.5 x normal
Fibrinogen: > 1.5-2.0 g/L

Activate Massive Haemorrhage Protocol

QMC ED: Bleep 784 1342 – “CODE 911”

Theatres: 2222 – “Massive Haemorrhage Th X”

Send Samples by Hand

(X Match, FBC, Coagulation, Fibrinogen)

Collect & Transfuse Red Cells (20 mL/kg)

Instigate resuscitation & haemorrhagic prevention measures

Consider **Tranexamic Acid**

(15 mg/kg IV bolus (max 1 g) then 2 mg/kg/hr infusion)

Correct Acidosis & Hypothermia

Contact Haematologist (may be initiated by Blood Bank)

Collect & Transfuse Haemorrhage Pack 2 accordingly

Enquire about available blood results but **DO NOT WAIT** for results before transfusing

Send repeat samples

In addition check ABG, K⁺, Ca⁺⁺

Patient Still Bleeding?

Send for Haemorrhage Pack 3

Liaise with Consultant Haematologist

Collect Haemorrhage Pack 3 & Transfuse accordingly

Check available blood results

Send repeat samples

Patient Still Bleeding?

Discuss with Consultant Haematologist

Further components require authorisation form Consultant Haematologist

MANAGEMENT OF TRAUMATIC BRAIN INJURY (1)

Indicators of severe / time critical injury



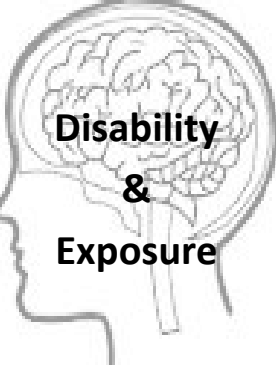

- GCS <9
- Falling GCS
- Focal neurological deficit
- Single dilated pupil
- Depressed/open skull fracture
- CSF leak

Other indications for intubation

- Loss of protective laryngeal reflexes
- Ventilatory insufficiency: hypoxaemia (PaO₂ < 9 kPa on air or < 13 kPa on O₂) or hypercarbia (PaCO₂ > 6 kPa)
- Spontaneous hyperventilation (PaCO₂ < 3.5 kPa)
- Respiratory irregularity

Children’s Glasgow Coma Scale (< 4 years)		Glasgow Coma Scale (4 – 15 years)	
Response	Score	Response	Score
Eye opening		Eye opening	
Spontaneously	4	Spontaneously	4
To verbal stimuli	3	To verbal stimuli	3
To pain	2	To pain	2
No response to pain	1	No response to pain	1
Best verbal / non-verbal response		Best verbal response	
Alert; babbles, coos words to usual ability Smiles, fixes & follows	5	Orientated and converses	5
Less than usual words, spontaneous irritable cry, consolable	4	Disorientated and converses	4
Cries only to pain, inconsolable	3	Inappropriate words	3
Moans to pain. Restless/agitated	2	Incomprehensible sounds	2
No response to pain	1	No response to pain	1
Best motor response		Best motor response	
Spontaneous or obeys verbal command	6	Obeys verbal command	6
Localises to pain or withdraws to touch	5	Localises to pain	5
Withdraws from pain	4	Withdraws from pain	4
Abnormal flexion to pain (decorticate)	3	Abnormal flexion to pain (decorticate)	3
Abnormal extension to pain (decerebrate)	2	Abnormal extension to pain (decerebrate)	2
No response to pain	1	No response to pain	1

MANAGEMENT OF TRAUMATIC BRAIN INJURY (2)

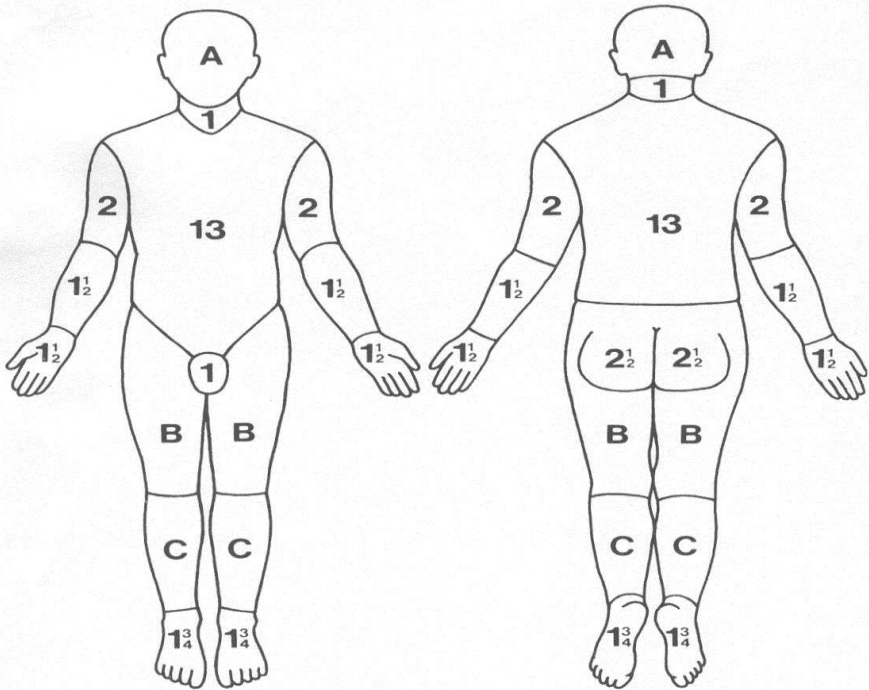
 <p>Airway & Breathing</p>	<ul style="list-style-type: none"> • Intubate and ventilate • Oral ETT, secured with tape • Aim for: PaCO₂ 4.5 – 5.0 kPa PaO₂ ≥10 kPa • C-spine immobilisation if suspected injury
 <p>Circulation</p>	<ul style="list-style-type: none"> • Aim for: Systolic ≥ 80 + (Age x 2) mmHg • Adequate intravenous crystalloid resuscitation • Continue maintenance fluids • Noradrenaline if euvoelaemic and CPP < (45 + Age) mmHg
 <p>Disability & Exposure</p>	<ul style="list-style-type: none"> • 15 minute neuro observations • Sedate with Morphine and Midazolam to complete unresponsiveness to noxious stimuli (see infusions below) • Maintain paralysis while transferring patient • Treat seizures with Phenytoin 20 mg/kg over 20 min (Phenobarbitone in neonates) • Discuss strategy for managing raised ICP with neurosurgeons (in an emergency consider Mannitol 0.25 – 0.5 g/kg) • Keep 36 – 37°C, cool if needed. Warm no faster than 0.5°C/hr
 <p>Ongoing Management</p>	<ul style="list-style-type: none"> • Head up position 15 - 30° • ICP < 20 mmHg • CPP > (45 + age) mmHg • Blood glucose 6 – 8 mmol/L • Serum sodium 140 – 150 mmol/L • HB > 10 g/dL

	Bolus dose	Dilution for infusion	Infusion rate
Morphine	0.1 mg/kg	1 mg/kg in 50 mL	10 – 40 microgram/kg/hr (1 mL/hr = 20 microgram/kg/hr)
Midazolam	0.1 mg/kg	6 mg/kg in 50 mL	60 – 240 microgram/kg/hr (1 mL/hr = 120 microgram/kg/hr)
Atracurium	0.5 mg/kg	Neat (10 mg/mL)	300 – 600 microgram/kg/hr (1 mL/hr = (10,000/wt in kg) microgram/kg/hr)
Rocuronium	0.6 mg/kg	Neat (10 mg/mL)	300 – 1000 microgram/kg/hr (1 mL/hr = (10,000/wt in kg) microgram/kg/hr)
Noradrenaline / Adrenaline	N/A	0.3 mg/kg in 50mL of 5% Dextrose	0.01 – 0.5 microgram/kg/min (1 mL/hr = 0.1 microgram/kg/min)

MANAGEMENT OF BURNS

LUND AND BROWDER CHARTS

IGNORE
SIMPLE ERYTHEMA



REGION	%
HEAD	
NECK	
ANT. TRUNK	
POST. TRUNK	
RIGHT ARM	
LEFT ARM	
BUTTOCKS	
GENITALIA	
RIGHT LEG	
LEFT LEG	
TOTAL BURN	

RELATIVE PERCENTAGE OF BODY SURFACE AREA
AFFECTED BY GROWTH

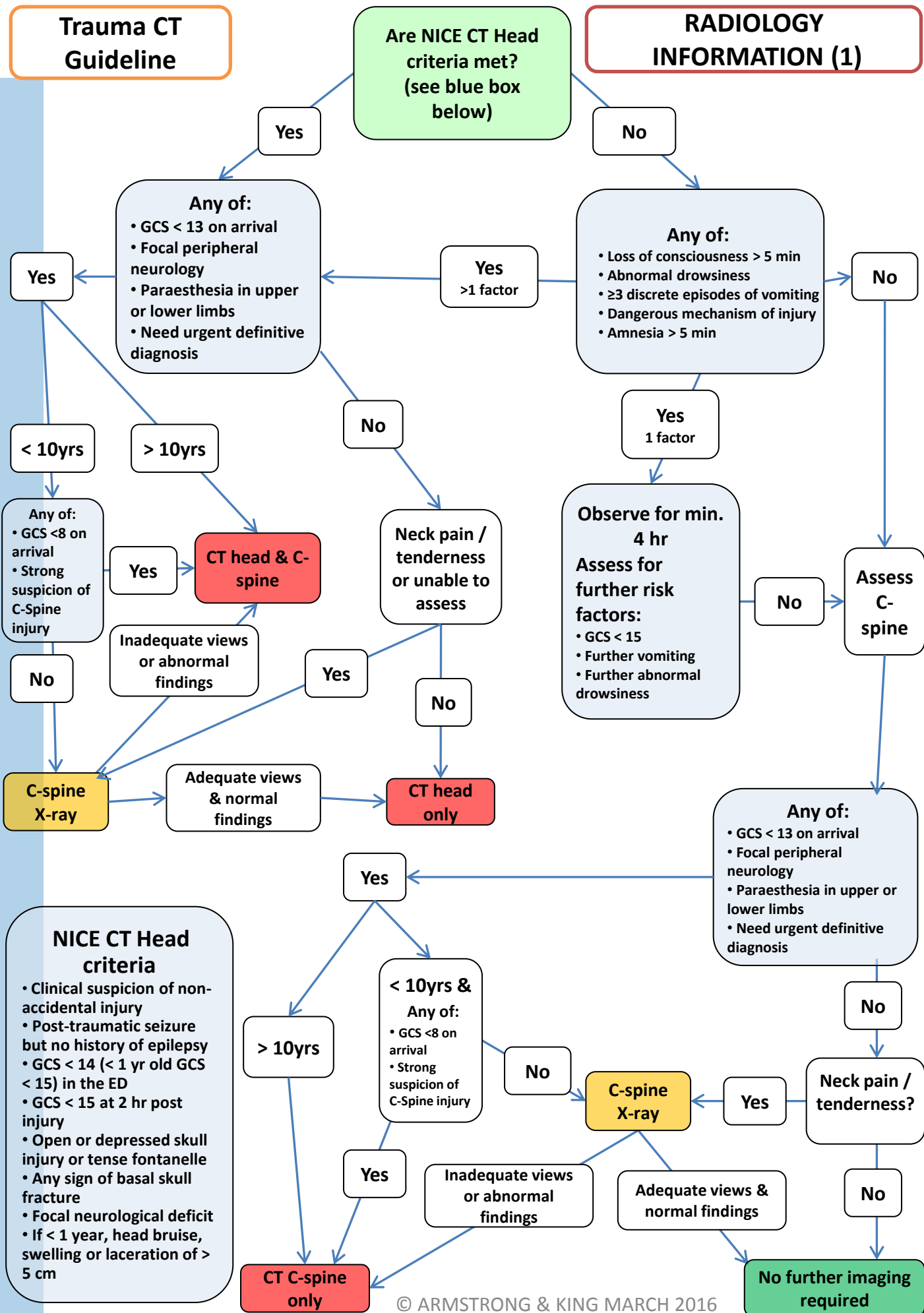
AREA	AGE 0	1	5	10	15	ADULT
A = 1/2 OF HEAD	9 1/2	8 1/2	6 1/2	5 1/2	4 1/2	3 1/2
B = 1/2 OF ONE THIGH	2 3/4	3 1/4	4	4 1/2	4 1/2	4 3/4
C = 1/2 OF ONE LEG	2 1/2	2 1/2	2 3/4	3	3 1/4	3 1/2

AIRWAY	Indications for intubation <ul style="list-style-type: none">• Airway burns• Inhalational injury• Reduced or fluctuating conscious level GCS ≤ 8	When indicated:- <ul style="list-style-type: none">• Don't delay, get senior help• Intubate with oral tubes (ideally cuffed)• DON'T cut the ETT• 100% oxygen until CO levels < 10%
FLUIDS	Parkland formula (Hatmann's solution) PLUS Maintenance fluids (0.9% Saline / 5% Dextrose) ➤ 4:2:1 rule	4 mL/kg/% BSA ➤ 1/2 in first 8 hr ➤ 1/2 in next 16 hr Aim for urine output > 1 mL/kg/hr Treat shock with fluid boluses
OTHER	<ul style="list-style-type: none">• Manage as trauma (consider C-spine & secondary survey)• Check carboxyhaemoglobin levels (normal < 5%)• Access – 2 x large bore IV or IO• Analgesia – Paracetamol / opiates / Ketamine as indicated• Insert NG tube	Indications for transfer to a Burns Centre (Birmingham) <ul style="list-style-type: none">• Ventilated patients• Burn area > 30% BSA• Burn with poly-trauma

Trauma CT Guideline

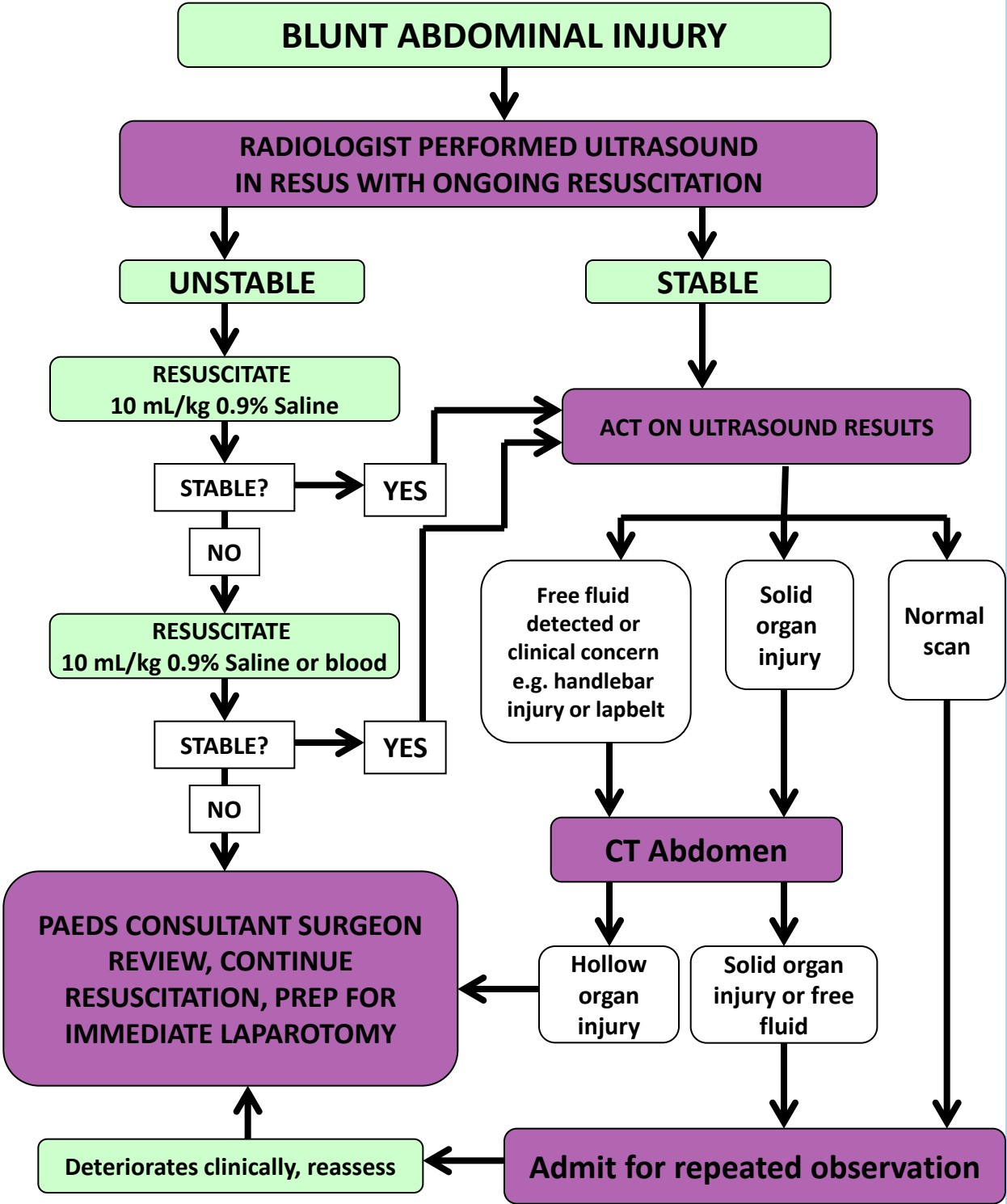
Are NICE CT Head criteria met?
(see blue box below)

RADIOLOGY INFORMATION (1)



RADIOLOGY INFORMATION (2)

Paediatric Abdominal CT Guideline



UNANTICIPATED DIFFICULT MASK VENTILATION

Recognition	<ul style="list-style-type: none"> • Inability to maintain ventilation using face mask • Give 100% oxygen • CALL for HELP 	
Immediate management	<ul style="list-style-type: none"> • Optimise head position – chin lift / jaw thrust, shoulder roll, neutral head position, adjust / remove cricoid pressure, 2 person BMV • Check equipment – circuit, mask, connectors, consider using a self inflating bag • Increase depth of anaesthesia – propofol 1st line <ul style="list-style-type: none"> • Consider CPAP 	
2nd stage management	<ul style="list-style-type: none"> • Insert oropharyngeal airway • Treat cause e.g. <ul style="list-style-type: none"> ➤ Light anaesthesia – deepen anaesthesia ➤ Laryngospasm – PEEP ➤ Gastric distension – NG tube • Maintain anaesthesia <ul style="list-style-type: none"> ➤ If paralysed, attempt intubation • If intubation unsuccessful, proceed to failed intubation algorithm 	
3rd stage management	<ul style="list-style-type: none"> - Insert Supra-glottic airway device (LMA) <ul style="list-style-type: none"> ➤ not more than 3 attempts - Consider Nasopharyngeal Airway 	
	<p>Good airway</p> <ul style="list-style-type: none"> • Continue with procedure 	<p>Poor airway</p> <ul style="list-style-type: none"> • $\text{SaO}_2 > 80\%$ - consider: adjusting/changing LMA, bronchospasm / pneumothorax • $\text{SaO}_2 < 80\%$ - attempt intubation <ul style="list-style-type: none"> ➤ Successful – continue ➤ Unsuccessful – proceed to failed intubation algorithm





UNANTICIPATED DIFFICULT TRACHEAL INTUBATION

Recognition	<ul style="list-style-type: none"> • Difficult direct laryngoscopy • Satisfactory mask ventilation & oxygenation • Give 100% oxygen & maintain anaesthesia (CPAP / avoid gastric distension) • CALL for HELP
Immediate management	<ul style="list-style-type: none"> • Direct laryngoscopy – Not > 4 attempts • Optimise head position & laryngoscopy technique (consider: using bougie, changing blade / ETT size) • Remove / adjust laryngeal manipulation / cricoid pressure • Consider inadequate paralysis • If intubation successful confirm position with ETCO₂ & auscultation <ul style="list-style-type: none"> ➤ If in doubt – Remove ET tube
2nd stage management	<p>FAILED INTUBATION with good oxygenation / mask ventilation:</p> <ul style="list-style-type: none"> ➤ CALL for HELP if not arrived ➤ Insert supra-glottic airway device (SAD) e.g. LMA; 3 attempts max ➤ Consider use of indirect laryngoscope if experienced in use & available
	<p>Successful airway with SAD – consider safety of proceeding with surgery</p> <ul style="list-style-type: none"> • Safe – proceed with surgery • Unsafe – postpone surgery & wake patient up • If safe – consider 1 attempt of FOI via SAD
	<p>Failed oxygenation SaO₂ <90% with FiO₂ 1.0</p> <ul style="list-style-type: none"> • Convert back to MV, optimise positioning, oxygenate & ventilate, apply CPAP, consider 2 person BMV, manage gastric distension, reverse non-depolarising muscle relaxant ➤ Successful – postpone surgery & wake up ➤ Unsuccessful – proceed to “can’t intubate can’t ventilate” algorithm





CAN'T INTUBATE, CAN'T VENTILATE (CICV)

Recognition	<ul style="list-style-type: none"> • Failed intubation & inadequate ventilation • Give 100% oxygen • CALL for HELP 	
Immediate management	<ul style="list-style-type: none"> • FiO₂ 1.0, continue to attempt oxygenation & ventilation • Optimise head position – chin lift / jaw thrust • Insert oropharyngeal airway or SAD • Ventilate with a 2 person BM technique • Insert NG tube, if time permits (prevent gastric distention) 	
2nd stage management	<p>➤ Wake patient up if SaO₂ > 80%</p> <ul style="list-style-type: none"> • Reverse with suggamadex (16mg/kg) if rocuronium / vecuronium used • Prepare for rescue techniques if patient deteriorates 	
3rd stage management (Airway Rescue Techniques)	Specialist ENT support available:	ENT unavailable:
	<ul style="list-style-type: none"> • Surgical tracheostomy • Rigid bronchoscopy & ventilate 	<ul style="list-style-type: none"> • Percutaneous cannula cricothyroidotomy / transtracheal jet ventilation (pressure limited) ➤ Successful – continue at lowest pressure settings until wake up or definitive airway established ➤ Fail – perform surgical cricothyroidotomy / transtracheal & insertion of ETT / tracheostomy tube
<p align="center"><u>Cannula cricothyroidotomy</u></p> <ul style="list-style-type: none"> - Extend neck (roll under shoulders), stabilise larynx with non dominant hand, access cricothyroid membrane with a 14/16G cannula aimed in a caudal direction, confirm position by aspiration of air into saline filled syringe - Connect to either adjustable pressure limiting device set to lowest pressure OR O₂ flowmeter (flow (L/min) = child's age in yr) and a 3-way tap - Cautiously increase inflation pressure / flow rate to achieve adequate chest expansion. Wait for full expiration before next inflation & maintain upper airway patency to aid expiration 		

MANAGEMENT OF MALIGNANT
HYPERTHERMIA

 <p>Diagnosis & Recognition</p>	<ul style="list-style-type: none">• Unexplained increase in EtCO₂ with tachypnoea AND• Unexplained tachycardia in non-paralysed patient AND• Unexplained increase in oxygen requirement• Raised temperature often a late sign <p>Previous uneventful anaesthesia does not rule out MH</p>	
 <p>Immediate management</p>	<ul style="list-style-type: none">• STOP all trigger agents• Call for help• Get MH box (Kept in All Recovery areas & MRI)• Install clean breathing system & hyperventilate with 100% O₂ high flow• Maintain anaesthesia with IV propofol• Abandon/finish surgery ASAP	
 <p>Monitoring & treatment</p>	<ul style="list-style-type: none">• Give dantrolene →• Active cooling <p>Treat:</p> <ul style="list-style-type: none">• Hyperkalaemia• Arrhythmias• Metabolic acidosis• Myoglobinuria• DIC <p>Bloods</p> <ul style="list-style-type: none">• CK, ABG, U&Es, FBC, coagulation	<p>DANTROLENE 2.5 mg/kg bolus Then 1 mg/kg repeat boluses up to 10 mg/kg Mix vials with water for injection</p>
		<p>Monitoring</p> <ul style="list-style-type: none">• Core & peripheral temperature• EtCO₂, SpO₂, ECG• Arterial BP & CVP
 <p>Follow up</p>	<ul style="list-style-type: none">• Transfer to Paediatric ICU• Repeat dantrolene as required• Repeat CK• Refer to MH unit at St James’s Hospital, Leeds (0113 206 5270)	

MANAGEMENT OF SEVERE LOCAL
ANAESTHETIC TOXICITY

 <div>Diagnosis & Recognition</div>	<p>CNS: Sudden alteration in mental state or loss of consciousness with or without seizures.</p> <p>CVS: Cardiovascular collapse; conduction blocks, sinus bradycardia, asystole and ventricular tachyarrhythmia.</p> <p>These may occur some time after injection</p>
 <div>Immediate management</div>	<ul style="list-style-type: none">• Stop injection of local anaesthetic• Call for help• Give 100% oxygen and ensure adequate lung ventilation• Confirm / establish venous access• Control of seizures: give benzodiazepine or thiopentone or propofol in small incremental doses• Monitor cardiovascular status throughout
 <div>Local Anaesthetic induced Cardiac Arrest Management</div>	<ul style="list-style-type: none">• Start cardiopulmonary resuscitation as per protocol• Manage arrhythmias as APLS protocol: may be refractory to standard treatment• Prolong resuscitation maybe necessary• Consider treatment with lipid emulsion (see over): <ol style="list-style-type: none">1. Give an intravenous bolus injection of intralipid 20% 1.5 mL/kg over 1 min2. Follow immediately with an infusion rate of 15 mL/kg/hr.3. Continue CPR to circulate intralipid4. Repeat bolus 1 – 2 times at 5 min interval if inadequate circulation persists5. After another 5 min increase the rate to 30 mL/kg/hr if cardiovascular stability is not restored or an adequate circulation deteriorates6. Continue infusion until CVS stability or max. dose of intralipid is given7. Review infusion rate every 15 - 20 min, reduce & stop when clinical parameters allow <p>A maximum total dose of 12 mL/Kg is recommended</p>
 <div>Follow up</div>	<p>Report all cases to National Patient Safety Agency and to the Lipid Rescue site:</p> <p>www.npsa.nhs.uk & www.lipidrescue.org</p> <p>If possible take blood samples into a plain tube (red top) & a heparinized tube (green top) before and after lipid emulsion. Measure lipid and local anaesthetic levels</p>

IV INTRALIPID 20% DOSING FOR LOCAL ANAESTHETIC INDUCED CARDIAC ARREST

WEIGHT In kg	BOLUS Intralipid 20% 1.5 mL/kg IV over one minute	INFUSION Start at: 15 mL/kg/hr	INFUSION Increase to 30 mL/kg/hr If inadequate circulation persists	Maximum cumulative dose 12 mL/kg
1	1.5 mL	15 mL/hr	30 mL/hr	12 mL
2	3.0 mL	30 mL/hr	60 mL/hr	24 mL
3	4.5 mL	45 mL/hr	90 mL/hr	36 mL
4	6.0 mL	60 mL/hr	120 mL/hr	48 mL
5	7.5 mL	75 mL/hr	150 mL/hr	60 mL
6	9.0 mL	90 mL/hr	180 mL/hr	72 mL
7	10.5 mL	105 mL/hr	210 mL/hr	84 mL
8	12.0 mL	120 mL/hr	240 mL/hr	96 mL
9	13.5 mL	135 mL/hr	270 mL/hr	108 mL
10	15.0 mL	150 mL/hr	300 mL/hr	120 mL
15	22.5 mL	225 mL/hr	450 mL/hr	180 mL
20	30.0 mL	300 mL/hr	600 mL/hr	240 mL
25	37.5 mL	375 mL/hr	750 mL/hr	300 mL
30	45.0 mL	450 mL/hr	900 mL/hr	360 mL
35	52.5 mL	525 mL/hr	1050 mL/hr	420 mL
40	60.0 mL	600 mL/hr	1200 mL/hr	480 mL
45	67.5 mL	675 mL/hr	1350 mL/hr	540 mL
50	75.0 mL	750 mL/hr	1500 mL/hr	600 mL
55	82.5 mL	825 mL/hr	1650 mL/hr	660 mL
60	90.0 mL	900 mL/hr	1800 mL/hr	720 mL
70kg	100 mL	1000 mL/hr	2000 mL/hr	840 mL
80	120 mL	1200 mL/hr	2400 mL/hr	960 mL
90	135 mL	1350 mL/hr	2700 mL/hr	1080 mL
100	150 mL	1500 mL/hr	3000 mL/hr	1200 mL

NUH PAEDIATRIC PAIN GUIDELINES (1)

MORPHINE			FENTANYL											
<p><u>N.C.A. NEONATAL up to 12 wks</u> <i>Drug concentration = 10 microgram/kg/mL</i> i.e. 0.5 mg morphine/kg/bodyweight diluted to 50 mL with 0.9% Saline</p> <p>PUMP PROGRAMME Loading dose = zero Bolus dose = 0.5 mL Lockout = 60 min Background infusion = 0.5 – 1 mL/hr</p>			<p>To be used for renal patients requiring post-operative intravenous opiates</p> <p>OR</p> <p>Patients with inadequate analgesia with morphine</p>											
<p><u>N.C.A. INFANT -13 wks to 6 months</u> <i>Drug concentration = 10 microgram/kg/mL</i> i.e. 0.5 mg morphine/kg/bodyweight diluted to 50 mL with 0.9% Saline</p> <p>PUMP PROGRAMME Loading dose = zero, Bolus dose = 1 mL Lockout = 30 min, Background infusion = 1 mL/hr</p>			<p><u>N.C.A. ~ CHILDREN from 13 WEEKS</u> <i>Drug concentration = 1 microgram/kg/mL</i> i.e. 50 microgram/kg bodyweight (max. 2500 microgram) = 1 mL NEAT fentanyl/kg bodyweight – diluted to 50 mL with 0.9% Saline</p> <p>PUMP PROGRAMME Loading dose = zero, Bolus dose = 1 mL Lockout = 30 min, Background infusion = 1 mL/hr</p>											
<p><u>N.C.A. CHILDREN from 6 months</u> <i>Drug concentration = 20 microgram/kg/mL</i> i.e. 1 mg morphine/kg/bodyweight (max. 50 mg) diluted to 50 mL with 0.9% Saline</p> <p>PUMP PROGRAMME Loading dose = zero, Bolus dose = 1 mL Lockout = 30 min, Background infusion = 1 mL/hr</p>			<p><u>P.C.A. ~ CHILDREN 6 YEARS +</u> <i>Drug concentration = 1 microgram/kg/mL</i> i.e. 50 microgram/kg bodyweight (max. 2500 microgram) = 1mL NEAT fentanyl/kg bodyweight – diluted to 50 mL with 0.9% Saline</p> <p>PUMP PROGRAMME Loading dose = zero, Bolus dose = 0.5 mL Lockout = 6 - 10 min, Background infusion = 0.5 mL/hr</p>											
<p><u>P.C.A. ~ CHILDREN 6 YEARS +</u> i.e. 1 mg morphine/kg/bodyweight (max. 50 mg) diluted to 50 mL with 0.9% Saline</p> <p>PUMP PROGRAMME Loading dose = zero, Bolus dose = 1 mL Lockout = 5 min, Background infusion = 0.2 mL/hr</p>			<p><u>KETAMINE</u> <i>Drug concentration = 40 microgram/kg/mL</i> i.e. 2 mg Ketamine / kg bodyweight (max. 100 mg) diluted to 50 mL with 0.9% Saline</p> <p>PCA Indications – pancolitis & risk of toxic megacolon. Loading dose = 1-2 mL of solution Infusion 0-1 mL/hr Bolus 0.5-1 mL Lockout 10-30 min</p> <p>Infusion Indications – scoliosis surgery or complex analgesia requirements. Loading dose = 1-2 mL of solution Infusion 0-5 mL/hr</p> <p>Must be discussed with a Consultant Anaesthetist</p>											
<p><u>ORAL MORPHINE</u></p> <table><thead><tr><th><u>AGE</u></th><th><u>DOSE</u></th><th><u>INTERVAL</u></th></tr></thead><tbody><tr><td>6/12 – 1 yr</td><td>100 microgram/kg</td><td>4 hourly</td></tr><tr><td>1 yr – 2 yrs</td><td>200 – 400 microgram/kg</td><td>4 hourly</td></tr><tr><td>> 2 yrs</td><td>200 – 500 microgram/kg</td><td>4 hourly</td></tr></tbody></table>						<u>AGE</u>	<u>DOSE</u>	<u>INTERVAL</u>	6/12 – 1 yr	100 microgram/kg	4 hourly	1 yr – 2 yrs	200 – 400 microgram/kg	4 hourly
<u>AGE</u>	<u>DOSE</u>	<u>INTERVAL</u>												
6/12 – 1 yr	100 microgram/kg	4 hourly												
1 yr – 2 yrs	200 – 400 microgram/kg	4 hourly												
> 2 yrs	200 – 500 microgram/kg	4 hourly												

NUH PAEDIATRIC PAIN GUIDELINES (2)

LOCAL ANAESTHETICS	OTHER DRUGS
<p><u>EPIDURAL ~ CHILDREN > 13 wks</u></p> <p>Drugs & concentration</p> <ul style="list-style-type: none"> • 0.1 % Levo-bupivacaine + Fentanyl 2 microgram/mL • Plain 0.125 % Levo-bupivacaine • 0.1 % Levo-bupivacaine + Clonidine 1 microgram/mL <p>Rate = 0.1 - 0.3 mL/kg/hr – maximum 15 mL/hr</p>	<p><u>ANTIEMETICS</u></p> <p><u>ONDANSETRON</u> 0.15 mg/kg 8 hourly IV or PO max = 4 mg</p> <p><u>DEXAMETHASONE</u> 0.15 mg/kg 8 hourly IV or PO max = 4 mg</p>
<p><u>EPIDURAL TROUBLE SHOOTING</u></p> <ol style="list-style-type: none"> 1. Block but inadequate analgesia – increase rate within prescribed range OR change to plain L-bupivacaine plus NCA / PCA 2. Inadequate / no block – bolus 0.1 mL/kg of 0.25% L- bupivacaine, assess BP every 5 min for 15 min 3. If NO improvement in block – change to NCA / PCA <p>Boluses – ONLY by members of anaesthetic department or pain service</p>	<p><u>ANALGESICS</u></p> <p><u>PARACETAMOL - PO</u> Under 13 wks – loading dose 20 mg/kg then 20 mg/kg TDS. Max. daily dose = 60 mg/kg Over 13 wks - loading dose 20 mg/kg then 15 mg/kg QDS. Max. daily dose = 90 mg/kg or 4 g</p> <p><u>PARACETAMOL - INTRAVENOUS</u> Preterm over 32 weeks 7.5 mg/kg TDS, max 25 mg/kg daily Neonate / Infant <10kg 10 mg/kg TDS, max 30 mg/kg daily Child body weight <50 kg 15 mg/kg 4 hourly, max 60 mg/kg daily Child body weight >50 kg 1g 4 hourly, max 4 g daily</p> <p><u>IBUPROFEN (NSAID)</u> <5 kg weight = Not recommended Child over 5 kg body weight = 5 mg/kg QDS (10 mg/kg severe pain) Max. daily dose = 2.4 g</p>
<p><u>REGIONAL BLOCK / WOUND CATHETERS</u></p> <p>Drug & concentration = 0.125 % Levo-bupivacaine</p> <p><u>Wound catheter infusions</u> Child 0 – 8 years - rate 0 – 2 mL/hr Child 9 years and over - rate 0 – 5 mL/hr</p> <p><u>Paravertebral</u> Rate = 0 - 0.2 mL/kg/hr – maximum = 10 mL/hr</p> <p><u>Caudal analgesia</u> Drug & concentration = 0.25 % L-bupivacaine Volume = 0.5 – 1.0 mL/kg single shot Possible caudal additives:- Clonidine 1 microgram/kg</p>	<p><u>DICLOFENAC (NSAID)</u> <6 mths (postoperative pain) Not recommended From 6 mths = 1 mg/kg TDS Max. daily dose = 150 mg for children >50 kg</p> <p><u>NALOXONE - IV OR IM (REVERSAL OF RESPIRATORY DEPRESSION)</u> Children under 12 yrs of age -1 microgram / kg 12 yrs and older -1 –3 micrograms / kg Max 200 microgram (always prescribe with NCA / PCA)</p> <p>1st choice for treatment of opiate induced itch is regular Ondansetron. 2nd line is Cetirizine (non-sedating antihistamine). Piriton may cause excessive drowsiness with opiates</p>

COMMON OPERATIONS

Speciality	Operation	Analgesia	Antibiotics
ENT	Myringotomy	Paracetamol ±NSAID	Nil
	Tonsillectomy	Opiate, Paracetamol ±NSAID. Antiemetic x2	Nil
	Mastoid & middle ear	Remi intra-op. PO opiate post op. Antiemetic x2	Nil
Eyes	Strabismus	Block / topical. Opiate ± NSIAD. Anti-emetic x2	Nil
	Vitreoretinal	NSAID ±Peribulbal block	Nil
Dental	Extraction	NSAID ± Paracetamol Pre-op	Nil
General (minor)	Sub-umbilical	Local / Nerve block / Caudal	Nil
	Circumcision	Caudal / Penile block	Nil
	Hypospadias	Caudal (±Clonidine) / Penile block	Co-amoxiclav (30 mg/kg)
	Orchidopexy	Local / Caudal	Nil
	Hernia repair	Local / Nerve block / Caudal	Nil
General (major)	Major Intra-abdominal	PCA / NCA ± Wound infusion catheter / epidural (D/W pain team)	Co-amoxiclav OR Cefuroxime / Metronidazole (7.5 mg/kg)
	Appendix (open)	Paracetamol, NSAID, PCA/NCA	Cef / Met
	Fundoplication (open)	PCA / NCA & wound infusion catheter OR Epidural with opiate (D/W pain team)	Co-amoxiclav
	Thoracotomy	Epidural with opiate OR PCA / NCA & wound infusion catheter (D/W pain team)	Co-amoxiclav
	Laparoscopic surgery	Local to ports. PCA / NCA	Co-amoxiclav
Ortho / spines	Lower limb (minor)	Nerve block / Local. Paracetamol & PO opiate	Cefuroxime (30 mg/kg)
	Lower limb (major)	Epidural with Clonidine. Paracetamol & NSIAD Diazepam for spasm (0.1 mg/kg QDS PRN)	Flucloxacillin (25 mg/kg) Gentamicin (2 mg/kg)
	Upper limb	Nerve block / Local	Cefuroxime
	Spines	Remi & morphine. Paracetamol/NSAID/Fentanyl NCA/PCA & Ketamine infusion	Flucloxacillin Gentamicin
Plastics	Day case	Per-op Paracetamol ±NSAID. Pre-incision local	Nil
	In patient	Paracetamol ±NSAID. PO opiate / PCA / NCA	Nil
Clefts	Lip and/or Palate	Local & Morphine. Post-op Paracetamol, NSAID & PO opiate	Co-amoxiclav
Neuro	Minor / extra-cranial	Local ± fentanyl. Paracetamol ±NSAID. PO opiate	Cefuroxime
	Major / Intra-cranial	Remi & morphine. Paracetamol & PCA / NCA	Flucloxacillin Gentamicin

ANAESTHETIC GUIDELINES FOR PAEDIATRIC RENAL TRANSPLANT

Preoperative Assessment

- Hypertension
- Electrolytes – K⁺, Na⁺, Mg⁺.
- If K⁺ >6 dialyse pre-surgery
- Degree of anaemia – chronic anaemia well tolerated, only transfuse if Hb < 7 g/dL
- Volume status – hypo / hypervolaemic

Monitoring

- Routine non-invasive BP, ECG. SpO₂, EtCO₂, core temp
- Invasive monitoring
 - **CVP (Essential)**
 - Arterial line in children ≤ 5 years
 - Urinary catheter
 - **NO IV cannula in non-dominant forearm** as may be used for a fistula in the future.

Intra-operative Management

- Induction technique is tailored to the medical condition of the patient with the intention of protecting against aspiration and minimizing cardiovascular changes.
- Avoid hypothermia & vasoconstriction by using **warm air blowers** and **warmed fluids**
- Provide analgesia either using a **fentanyl NCA / PCA** or an **epidural infusion**.
- Fluid management
 - Correct underlying hypovolaemia with 0.9% Saline or colloid
 - 30 min prior to vascular unclamping volume load the patient:
 - **Child ≤5 years aim for a CVP 15 – 20**
 - **Child ≥6 years aim for a CVP 12 – 14**
 - **Aim for a systolic BP > 100 mmHg**
 - An adult kidney can sequester 200 – 300 mL of blood, which is a significant proportion of the young child's circulating blood volume
 - **Remainder of surgical time aim for a CVP 10 – 15**
- Following ureteral anastomosis urine production can be monitored. Replace urine volume every 30 min mL for mL with crystalloid to prevent dehydration from urea / mannitol induced osmotic diuresis.
- Children ≤5 years may require a period of post-operative ventilation as they are predisposed to develop pulmonary oedema due to aggressive fluid management.
- Additional peri-operative medications:

At induction:

Methylprednisolone 300 mg/m² slow IV over 10 min(max 500 mg)

Co-amoxiclav 30 mg/kg (max 1.2 g)

At time of arterial anastomosis:

Mannitol 0.5 to 1 g/kg IV (max 25 g)




Frusemide 1-2 mg/kg over 5 min

MANNITOL 1 G/KG = 5 mL/KG OF 20% SOLUTION (200 mg/mL)

ADVICE ON WHEN TO CALL A CONSULTANT

- To discuss any concerns
- For all neonates & babies under 1 year
- Emergency removal of airway foreign bodies children under 4 years
- Emergency intubation in young children with a compromised airway i.e. croup, epiglottitis, facial burns
- The following burns patients:
 - Children under 5 yrs with a burn requiring IV resuscitation (i.e. >10% TBSA) going to theatre acutely.
 - Children under 10 yrs going to theatre acutely for debridement & skin graft, escharotomy or fasciotomy
 - Children under 10 yrs with airway compromise or potential airway compromise from the burn injury as above
 - Children under 10 yrs with concomitant burn injury and other trauma
- ASA 3 and above patients, under 5 yrs requiring surgery
- All neurosurgical patients under 5 yrs requiring urgent surgery
- Children requiring urgent surgery for intracranial bleeds under 10 yrs
- Children requiring urgent surgery for major trauma incl. shooting/stabbing under 10 yrs
- Renal transplants in children under 5 yrs old
 - In older children the patient should be discussed, but if the 3rd on-call or adult anaesthetist is happy & aware of the anaesthetic protocol (intranet & desk-top of theatre computers), they can manage the case.
- Complex problems with paediatric pain management and safeguarding issues should be discussed

MANAGEMENT OF ANAPHYLAXIS

 <p>Diagnosis & Recognition</p>	<p>Signs and symptoms</p> <ul style="list-style-type: none"> • Airway - Swelling, hoarseness, stridor • Breathing - Tachypnoea, wheeze, desaturation • Circulation - Pale, clammy, hypotension, tachycardia • Disability - Drowsy • Exposure - Rash
 <p>Immediate management</p>	<ul style="list-style-type: none"> • Call for help • High flow O₂ • Ensure airway secure • Ensure IV access • Lie flat & elevate legs
 <p>Treatment</p>	<p>ADRENALINE</p> <p>Intramuscular doses of 1:1000</p> <ul style="list-style-type: none"> • Under 6 years = 150 microgram IM (0.15 mL) • Age 6-12 years = 300 microgram IM (0.3 mL) • > 12 years = 500 microgram IM (0.5 mL) <p>Or Intravenous adrenaline (1:10,000)</p> <ul style="list-style-type: none"> • Titrate 1 microgram/kg boluses • Repeat as required at 5 min intervals
	<p>IV FLUIDS</p> <ul style="list-style-type: none"> • STOP colloid - may be the cause! • 20 mL/kg crystalloid bolus

	IV CHLORPHENAMINE	IV HYDROCORTISONE
Child under 6 months	250 microgram/kg	25 mg
6 months to 6 years	2.5 mg	50 mg
6 - 12 years	5 mg	100 mg
> 12 years	10 mg	200 mg

MANAGEMENT OF SEPTIC SHOCK

Recognition:

- Fever, tachycardia & abnormal perfusion
- +/- tachypnoea / pulse oximetry < 95%, reduced urine output, irritability / lethargy / drowsiness, base deficit on ABG, hypotension (late sign)

Cold shock

- Capillary refill > 3 sec
- Reduced peripheral pulses
- Cool mottled extremities
- Narrow pulse pressure

Warm shock

- Flash capillary refill
- Bounding peripheral pulses
- Warm extremities
- Wide pulse pressure

IV Antibiotic Therapy

- Child < 28 days
 - Cefotaxime 50 mg/kg
 - Gentamicin 4 mg/kg (over 3 min)
 - Amoxicillin 100 mg/kg
 - Consider Aciclovir 20 mg/kg
- Child 28 days – 3 months
 - Cefotaxime 50 mg/kg
 - Gentamicin 7 mg/kg (over 30 min)
 - Amoxicillin 50 mg/kg
- Child > 3 months old
 - Ceftriaxone 80 mg/kg (slowly)
 - Gentamicin 7 mg/kg (over 30 min)

Coagulopathy

- Treat with 10 – 20 mL/kg FFP / Octaplas
- Low fibrinogen suggests DIC : give 5 – 10 mL/kg of Cryoprecipitate

Dopamine

- To make up (for CENTRAL use):
30 mg/kg in 50 mL 5% Dextrose
(1 mL/hr = 10 microgram/kg/min)

High flow O₂ (SaO₂ >95%)

Establish IV or IO access

Check Blood Sugar

Initial resuscitation

- Bolus 20 mL/kg 0.9% Saline or 4.5% HAS until perfusion improves or lung crackles develop (may need > 60 mL/kg)
- Correct hypoglycaemia – 2 mL/kg 10% Dextrose
- Start Antibiotics

Fluid refractory shock

Call PICU SpR

Start: Dopamine up to 15 microgram/kg/min IV / IO
Intubate & gain central access
(Use Ketamine / Fentanyl & Suxamethonium
ETT cuffed if possible, NG tube, urinary catheter)

For Cold Shock

Add in central Adrenaline
if Dopamine resistant

For Warm Shock

Add in central
Noradrenaline

Catecholamine resistant shock

Start Hydrocortisone (D/W PICU)

Transfer to PICU

(Check Ca²⁺, Mg²⁺, K⁺)

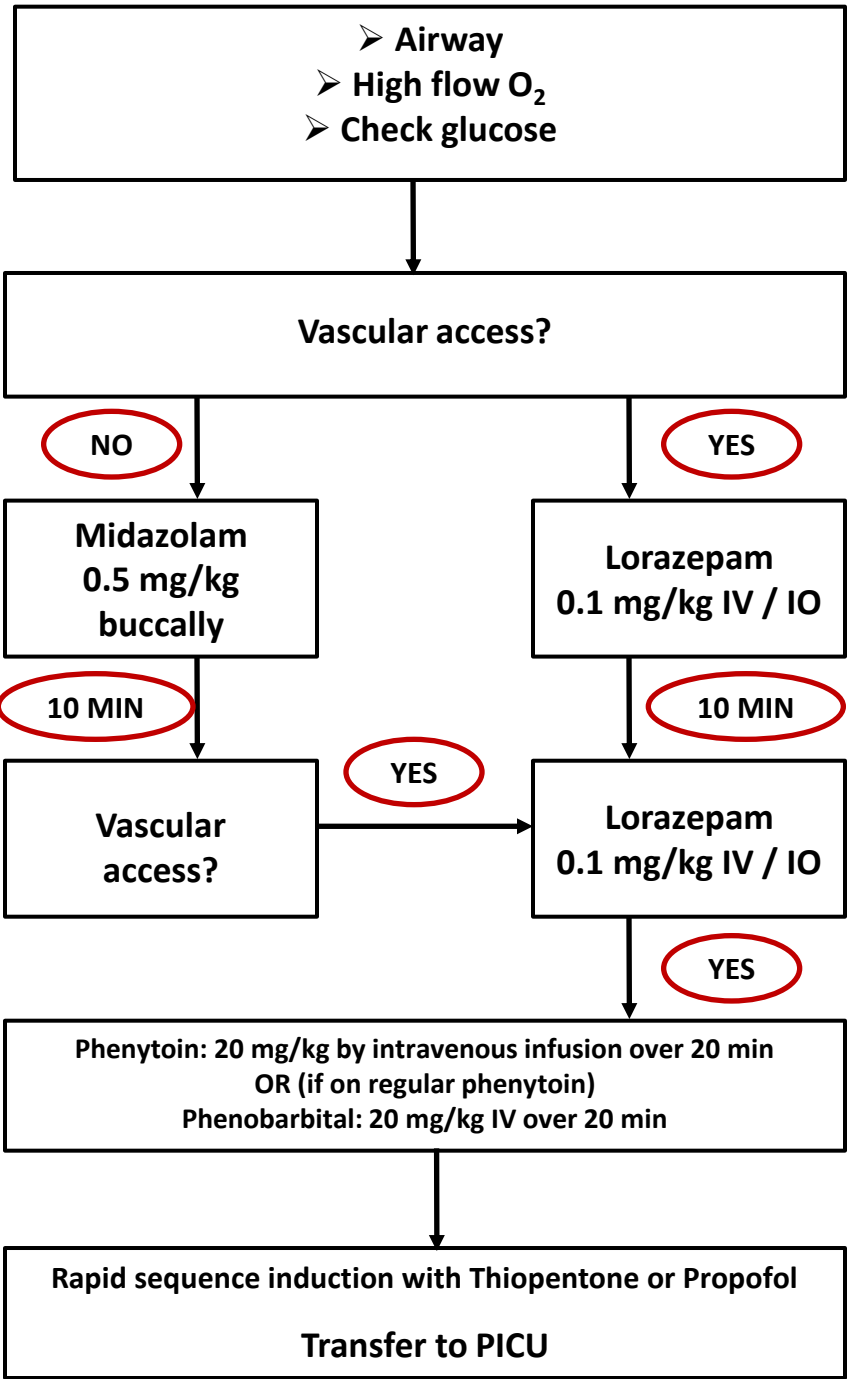
Goals of Resuscitation

Restore:- Normal perfusion, normal HR, BP & RR (for age),
normal mental status, UO > 1 mL/kg/hr & serum lactate < 2





MANAGEMENT OF STATUS EPILEPTICUS

NICE Clinical Guidelines CG137 (published 2011)

- **Confirm clinically that it is an epileptic seizure:**
 - Generalised convulsion lasting ≥ 30 min
 - or
 - Repeated convulsions occurring over a 30 min period without recovery of consciousness between convulsions
- **Consider what pre-hospital treatment has been received and modify the protocol accordingly.**
- Buccal Midazolam may be given by ambulance crew or parents in non-hospital setting
- If $BM < 3.0$ mmol/L administer **2 mL/kg 10% Dextrose**
- **Paraldehyde 0.8 mL/kg** of 50:50 paraldehyde/olive oil mixture PR may be administered as directed by senior staff (max 20 mL)
- Inform PICU & Anaesthetic Teams when considering loading with **Phenytoin**.
- **Phenytoin** administration -
Doses < 500 mg in 50 mL,
Doses > 500 mg in 250 mL





MANAGEMENT OF ACUTE LIFE THREATENING
ASTHMA

 <p>Diagnosis & Recognition</p>	<ul style="list-style-type: none">• Reduced consciousness / agitated• Silent chest• Fatigue, exhaustion• Poor respiratory effort• Cyanosis in air ($\text{SaO}_2 < 92\%$ in air)• $\text{PEFR} < 33\%$ expected	
 <p>Immediate management</p>	<ul style="list-style-type: none">• High flow O_2 to keep $\text{SpO}_2 > 92\%$• Get senior help (Paeds SpR / Anaes SpR / PICU)• Establish IV or IO access• Monitoring - ECG + SpO_2	
 <p>Treatment</p>	<p>NEBULISERS</p> <ul style="list-style-type: none">• Back-to-back salbutamol nebs (O_2 driven)<ul style="list-style-type: none">– 2.5 mg under 5 years OR 5mg over 5 years• Ipratropium nebs (250 microgram) every 20 min in 1st hour <p>INTRAVENOUS INFUSIONS</p> <ul style="list-style-type: none">• Salbutamol I.V. - Load over 5 min with: 5 microgram/kg if under 2yr OR 15 microgram/kg if over 2yr (max 250 microgram)• Aminophylline I.V. - Load with 5 mg/kg over 20 min then 1 mg/kg/hr• Magnesium I.V. - 0.2 mmol/kg over 20 min• Steroids - Hydrocortisone 4 mg/kg (Max 100 mg)• Crystalloid fluid boluses	
 <p>INTUBATION AVOID IF AT ALL POSSIBLE</p>	<p>Indications:</p> <ul style="list-style-type: none">• Cardiac or resp arrest• Severe hypoxia• Deteriorating mental state• Progressive exhaustion <p>CLINICAL JUDGEMENT RATHER THAN BLOOD GASES</p>	<p>Considerations:</p> <ul style="list-style-type: none">• Senior help• Consider RSI with ketamine & suxamethonium• Lignocaine spray to cords• Cuffed ETT if possible• Aim Vt 6-8 mL/kg• Avoid PEEP• Long expiratory times• Permissive hypercapnia• Consider paralysis

MANAGEMENT OF DIABETIC KETOACIDOSIS

<p>Diagnosis</p>	<p>History - Polyuria, polydipsia, weight loss, abdominal pain, tiredness, vomiting, confusion</p> <p>Signs - Dehydration, kussmaul breathing, lethargy/drowsiness</p> <p>Biochemical - Blood glucose >11 mmol/L, pH <7.3 or bicarbonate <15 mmol/L, ketouria</p>	
<p>Immediate management</p>	<ul style="list-style-type: none"> Airway & breathing - high flow oxygen Circulation - if shocked, give 10 ml/kg Sodium chloride 0.9%, repeat up to 3 times Assess degree of dehydration <ul style="list-style-type: none"> Mild, 3% - only just clinically detectable Moderate, 5% - dry mucous membranes, reduced skin turgor Severe, 8% - above plus sunken eyes, poor capillary return 1% dehydration = 10 mls/kg deficit to be replaced over 48hr Start IV fluid replacement with 0.9% saline and 20 mmol KCl/ 500 ml bag 	
<p>Monitoring & Investigations</p>	<ul style="list-style-type: none"> Weigh (12 hourly) Continuous ECG monitoring Hourly BP & Urine output Hourly GCS until pH > 7.3 Glucose ½ hourly for first 2 hr, then hourly until 4 – 14 mmol/L, then 2 – 4 hourly thereafter Na⁺, K⁺ & ABG at 0, 2 & 6 hours Capillary blood glucose & ketones every 1 – 2 hr 	<ul style="list-style-type: none"> Glucose, HbA1c U&Es Venous Blood gas Serum osmolality Urine/blood ketones FBC LFT Amylase
<p>Fluid management</p>	<p>Calculate total volume requirement and plan to replace over 48 hours</p> <p>Include:</p> <ul style="list-style-type: none"> - Deficit - measured or assessed wt loss (1 kg = 1000 mL) - Maintenance requirements - Continuing losses - replaced only if urine output or vomiting is excessive <p>Subtract:</p> <ul style="list-style-type: none"> - Any volume already received during resuscitation <p>Hourly rate = $\frac{(48 \text{ hr maintenance} + \text{deficit}) - \text{resuscitation fluid already given}}{48}$</p>	
<p>Insulin infusion</p>	<p>Commence insulin infusion an hour after starting IV fluids (50 units human soluble insulin (Actrapid or Humulin S) per 50 mL 0.9% saline)</p> <p>Infuse at rate of 0.1 units/kg/hour. An initial bolus should NOT be given</p> <p>Aim for a gradual fall in glucose of ≈5 mmol/L/hr until it reaches 14 mmol/L. If the rate of fall is >5 mmol/L/hr, add glucose to the IV fluids</p> <p>If despite increased glucose (up to 10%) , blood sugar continues to fall rapidly or is < 4 mmol/L decrease insulin rate to 0.05 units/kg/hr. DO NOT STOP INSULIN INFUSION</p> <p>For BM < 4 give a bolus of 2 mL/kg of 10% glucose IV and add extra glucose to the IV fluids, rather than reducing/stopping the insulin</p> <p>If pH >7.3 with stable blood sugars between 4 - 15 & receiving glucose containing IV fluids, insulin infusion can be reduced to 0.05 units/kg/hr</p>	

MANAGEMENT OF CEREBRAL OEDEMA
ASSOCIATED WITH DIABETIC KETOACIDOSIS

 <p>Diagnosis</p>	<ul style="list-style-type: none">• Up to 1% of children with DKA develop cerebral oedema with a high morbidity / mortality• Signs – Headache, confusion, irritability or restlessness, reduced conscious level, fits, increasing BP, slowing pulse, papilloedema, abnormal posturing• Risk appears to be increased if insulin is started within an hour of starting IV fluids. Hence current recommendation to defer the insulin infusion for at least 1 hour after starting fluids• If cerebral oedema is suspected inform the Paediatric Consultant and PICU team
 <p>Emergency management</p>	<ul style="list-style-type: none">• Exclude hypoglycaemia and continue insulin infusion• Give hypertonic saline (2.7%) 5 mL/kg over 5 – 10 min or mannitol 1 g/kg stat (5 mL/kg 20% mannitol in 20 min) as soon as possible• Restrict IV fluids to ½ maintenance and plan to replace over 72 hours rather than 48 hours• Continue management on PICU if not already there• Intubate and ventilate to low normal pCO₂ (4 kPa)• Exclude other diagnoses by CT scan (thrombosis, infarction or haemorrhage)• Consider intracranial pressure monitoring• Repeated doses of mannitol (above dose 2 hourly) may be needed to control intracranial pressure• Close management of sodium is essential. If outside of the range 140-150 mmol/L, discuss with paediatric endocrinologist on-call. Assess the degree of dehydration

FORMULARY (1)

DRUG	INDICATION	DOSE
Acyclovir	Severe sepsis in under 28 day old	20 mg/kg
Adenosine	Management of SVT	100 – 500 microgram/kg (max 12 mg)
Adrenaline	Cardiac arrest Anaphylaxis Croup / airway compromise Low cardiac output - (0.3 mg/kg in 50 mL 5% Dextrose)	IV: 10 microgram/kg IM: 10 microgram/kg Nebulised : 400 microgram/kg Infusion: 0.01 – 1 microgram/kg/min
Alfentanil	Short term analgesia / Induction	10 microgram/kg
Aminophylline	Life threatening asthma	5 mg/kg Then: 1 mg/kg/hr
Amiodarone	Arrhythmia management	5 mg/kg (max 1.2 g in 24 hr) Infusion: 300 microgram/kg/hr
Amoxicillin	Severe sepsis	50 – 100 mg/kg
Atracurium	Neuromuscular blockade	0.5 mg/kg Infusion: 0.3 – 0.6 mg/kg/hr
Atropine	Bradycardia Pre-medication (1 hr pre-procedure)	20 microgram/kg (100 – 600 microgram) 30 microgram/kg PO (max 900)
Benzyl-penicillin	Early sepsis in neonates	50 mg/kg
Blood (Packed Red Cells)	Haemorrhage / low Hb (< 80 g/L)	10 – 20 mL/kg (5 mL/kg will ↑ Hb by ~10 g/L)
Bupivacaine (levo-)	Local anaesthetic	2 mg/kg
Calcium Chloride 10%	Hypocalcaemia / Hyperkalaemia	0.2 mL/kg
Calcium Gluconate	Hypocalcaemia induced cardiac arrest Hyperkalaemia	0.3 mL/kg 10% solution (max 20 mL) 0.5 mL/kg 10% solution (max 20 mL)
Calcium Resonium	Hyperkalaemia	1 g/kg

FORMULARY (2)

DRUG	INDICATION	DOSE
Cefotaxime	Severe sepsis	50 mg/kg
Ceftriaxone	Severe sepsis	80 mg/kg
Cefuroxime	Surgical prophylaxis	30 – 50 mg/kg
Clonidine	Pre-medication (1 hr pre-procedure)	4 microgram/kg PO 2 microgram/kg Intranasal
Co-Amoxiclav	Surgical prophylaxis	30 mg/kg
Codeine	Analgesia (over 12 yrs only)	1 mg/kg/hr (max 60 mg)
Cryoprecipitate	Low fibrinogen (< 1.5 g/L)	5 – 10 mL/kg
Dantrolene	Malignant hyperthermia	2.5 mg/kg Then: 1 mg/kg boluses
Dexamethasone	Anti-emetic	0.15 mg/kg
Dextrose 10%	Hypoglycaemia Hyperkalaemia (<i>with Insulin</i>)	2 mL/kg Then: 5 mL/kg/hr 5 mL/kg/hr
Diazepam	Muscle spasm	0.1 mg/kg QDS
Diclofenac	Analgesia (> 6 months old)	1 mg/kg
Dobutamine	Low cardiac output states - 30 mg/kg in 50 mL 5% Dextrose	5 – 15 microgram/kg/min
Dopamine	Severe sepsis with low cardiac output - 30 mg/kg in 50 mL 5% Dextrose (central) - 3 mg/kg in 50 mL 5% Dextrose (peripheral)	5 – 15 microgram/kg/min
Esmolol	Treatment of arrhythmias	500 microgram/kg over 1 min Then: 50 microgram/kg/min over 4 min

FORMULARY (3)

DRUG	INDICATION	DOSE
Fentanyl	Analgesia / Induction of anaesthesia	1 – 2 microgram/kg
FFP / Octaplas	Coagulopathy / Massive transfusion	10 – 20 mL/kg
Flecainide	Resistant re-entry SVT, VEs or VT	2 mg/kg (max 150 mg)
Flucloxacillin	Surgical prophylaxis	25 mg/kg
Flumazaniil	Reversal of benzodiazepine	10 microgram/kg (max 200)
Furosemide	Diuretic	1 – 2 mg/kg
Gentamicin	Surgical prophylaxis Severe sepsis	2 mg/kg 5 – 7 mg/kg
Glycopyrolate	Bradycardia / Reversal of neuromuscular blockade	10 microgram/kg
Hydrocortisone	2 nd line anaphylaxis	4 mg/kg
	Steroid Replacement Therapy: (if > 10 mg prednisolone (or equivalent) per day) - Minor surgery (e.g. hernia repair)	Routine pre-op steroid dose OR 1 – 2 mg/kg IV at induction
	- Intermediate surgery (e.g. laparoscopic)	Normal dose AND 1 – 2 mg/kg IV at induction & 6 hourly for 24 hr
	- Major Surgery (e.g. laparotomy) If steroids stopped > 3 months ago – no replacement needed	Normal dose AND 1 – 2 mg/kg IV at induction & 6 hourly for 48 – 72 hr
Ibuprofen	Analgesia (>5 kg)	5 mg/kg
Insulin	Diabetic management Hyperkalaemia (<i>with 10% Dextrose</i>)	0.05 – 0.1 units/kg/hr
Intralipid 20%	Local anaesthetic toxicity	1.5 mL/kg; Then: 15 – 30 mL/kg/hr
Ipratropium	Asthma	Nebulised: 250 microgram

FORMULARY (4)

DRUG	INDICATION	DOSE
Ketamine	Pre-medication (30 min pre-procedure) Induction of anaesthesia	6 mg/kg PO (3 mg/kg if given with midazolam) 1 – 2 mg/kg IM: 5 – 10 mg/kg
Lidocaine	2 nd line VF or pulseless VT	1 mg/kg (max 100 mg)
Lorazepam	Pre-medication (1 hr pre-procedure) Status Epilepticus	50 – 100 microgram/kg (max 4 mg) 0.1 mg/kg
Magnesium Sulphate	Severe asthma / Torsades de pointes	0.1 – 0.2 mmol/kg (max 8 mmol)
Mannitol 20%	Raised ICP	0.25 – 1 g/kg (0.5 g/kg = 2.5 mL/kg)
Methyl-prednisolone	Renal transplant	300 mg/m ² over 10 min (max 500 mg)
Metronidazole	Surgical prophylaxis	30 mg/kg
Midazolam	Pre-medication (30 min pre-procedure) Status Epilepticus Sedation (6 mg/kg in 50 mL)	0.5 mg/kg PO (max 20 mg) 0.3 mg/kg Buccal (max 5mg) Buccal: 0.5 mg/kg Infusion: 60 – 240 microgram/kg/hr
Morphine	Analgesia: - Low dose (codeine replacement) Sedation (1 mg/kg in 50 mL)	IV: 0.1 mg/kg Oral: 0.1 – 0.5 mg/kg < 1 yr: 50 – 100 microgram/kg 1 yr: 100 – 200 microgram/kg Infusion: 10 – 40 microgram/kg/hr
Naloxone	Reversal of opiate overdose Reversal of post-op respiratory depression	100 microgram/kg repeat to a total max of 2mg <12 yr 1microgram/kg, >12 yr 2micrograms/kg
Neostigmine	Reversal of neuromuscular blockade	50 microgram/kg
Noradrenaline	Acute hypotension - 0.3 mg/kg in 50 mL 5% Dextrose	Infusion: 0.01 – 0.5 microgram/kg/min

FORMULARY (5)

DRUG	INDICATION	DOSE
Ondansetron	Anti-emetic / Opiate induced puritis	0.15 mg/kg
Paracetamol	Analgesia	IV: Prem > 32 weeks : 7.5 mg/kg TDS Neonate / Infant <10kg : 10 mg/kg TDS Child < 50 kg : 15 mg/kg QDS Child >50kg : 1g QDS
Paraldehyde	Status Epilepticus	PR: 0.8 mL/kg (max 20 mL)
Phenobarbital	Status Epilepticus	20 mg/kg over 20 min
Phenylephrine	Acute hypotension	1 microgram/kg
Phenytoin	Status Epilepticus	20 mg/kg over 20 min
Piperacillin (with Tazobactam)	Septicaemia	90 mg/kg (max 4.5g)
Piriton	2 nd line anaphylaxis / Puritis	0.1 mg/kg (max 4 mg PO, or 5 mg IV)
Platelets	Low platelets (< 75 x 10 ⁹ /L)	10 – 20 mL/kg
Propofol	Induction of anaesthesia Maintenance of anaesthesia	1 – 4 mg/kg Infusion: 4 – 12 mg/kg/hr
Prostin	Opening/maintaining PDA in neonate	5 nanogram/kg/min (max 100 nanogram/kg/min)
Rocuronium	Neuromuscular blockade	1 mg/kg Infusion: 0.3 – 1 mg/kg/hr

FORMULARY (6)

DRUG	INDICATION	DOSE
Salbutamol	Asthma	Nebulised: 2.5 – 10 mg IV: 5 microgram/kg (Under 2 yr) 15 microgram/kg (Over 2 yr)
Saline 2.7%	Raised Intra Cranial Pressure	5 mL/kg
Sodium Bicarbonate	Metabolic acidosis / Hyperkalaemia	0.5 – 1 mL/kg of 8.4% solution
Sugammadex	Reversal of Rocuronium – Routine Immediate	2 – 4 mg/kg 16 mg/kg
Suxamethonium	Neuromuscular blockade	1 – 2 mg/kg
Teicoplanin	Surgical prophylaxis	10 mg/kg over 30 min
Temazepam	Pre-medication (1 hr pre-procedure) (Age: 12 – 18 yr)	10 – 20 mg/kg
Thiopentone	Induction of anaesthesia	3 – 5 mg/kg
Tranexamic Acid	Massive haemorrhage	15 mg/kg Then: 2 mg/kg/hr
Vancomycin	Surgical prophylaxis	15 mg/kg over 60 min
Vecuronium	Neuromuscular blockade	0.1 mg/kg Infusion: 0.8 – 1.4 microgram/kg/hr

CONTACT NUMBERS

1 st On-Call	784-1050 / 70795	Theatre Co-ordinator	64668 / 784-3344	Th 1	64253	CCOT	780-6339
2 nd On-Call	784-1051 / 70088	Trauma Co-ordinator	784-3017	Th 2	64234	Paeds Pain Team	780-6527
3 rd On-Call	784-3051 / 70087	ODA	784-3019 / 70793	Th 3	64232	Adult Pain Team	780-6546
		Haematology	61181 / 784-1340	Th 7	64235		
Paeds Surg SpR	780-6741 / 70786	Blood Bank	63660 / 784-1340	Th 10	63308	QMC Anaes	61195
PICU SpR	784-3152	MASSIVE TRANSFUSION		Theatre Reception	63243	City Anaes	55637
Neurosurg SpR	784-3412 / 70079	FROM ED	784-1342 'CODE 911'	Theatre Recovery	63105 / 63304		
ENT	70082	FROM THEATRES	2222 'MH in Th X'			CHN Switch	57199
ITU On-Call	784-3014 / 70767	Clinical Chemistry	63059 / 784-1360	ED Resus	63879 / 66665	Royal Derby	*3068
Surgical SpR	784-3400	X-ray	63101 / 784-1300	Paediatric ED	61148 / 61149	Lincoln	01522 512512
		CT3	66750	PICU	61232 / 63422	KMH	*3064
Radiology (Head)	784-1312	CT4	70446	PHDU	62502 / 69041	Porters	63350 / 63211
Radiology (Body)	784-1313	MRI	63067	NICU	64120 / 65057	Security	63335
Radiology (MSK)	784-1311	Neuro X-Ray	64413 / 65850	AICU	62758 / 62762	Wards	690 + ward no



NOTES

References

- Weight Information
 - 1-12 months = $(0.5 \times \text{age in months}) + 4$
 - 1- 5 years = $(2 \times \text{age}) + 8$
 - 6 – 12 years = $(3 \times \text{age}) + 7$
 - UK-WHO growth charts – www.rcpch.ac.uk/growthcharts
- BNF for Children 2015-2016
- Resuscitation Council (UK) Emergency treatment of anaphylactic reactions. January 2008, annotated July 2012.
- Advanced Paediatric Life Support. The Practical Approach. 5th Edition
- Guideline for the assessment and management of acute asthma in children and young people. NUH Paediatric Clinical Guideline 2012, September 2012
- Malignant Hyperthermia Crisis – AAGBI Safety Guideline 2013
- Paediatric Airway Guidelines 2012 – The Guidelines Group
Supported by the Association of Paediatric Anaesthetists, the Difficult Airway Society and liaising with the RCoA
- Diabetic Ketoacidosis (DKA) in children and young adults < 18 years old. NUH Paediatric Clinical Guideline 1935, May 2010
- Midlands Burn Care Network (MBCN) Severity Thresholds Guidelines for the Admission and Transfer of Burn Patients in the Midlands. NUH Paediatric Clinical Guideline 2083, March 2012
- Management of Status Epilepticus, NICE Clinical Guidelines CG137 (published 2011)
- NUH Paediatric Traumatic Brain Injury Referral Pathway 2012
- Guideline for the assessment and management of sepsis including meningococcal sepsis in children and young people. NUH Paediatric Clinical Guideline 1969, April 2012
- NUH Paediatric Antibiotic Guidelines
- Massive Haemorrhage - NUH Massive Traumatic Haemorrhage Policy 2012, annotated February 2013
- Good Practice in Postoperative and Procedural Pain Management, 2nd Edition. APAGBI, July 2012
- Guideline for the management of severe local anaesthetic toxicity. NUH Anaesthetic Department, June 2010
- Guideline for Management of Patients Receiving a Renal Transplant. NUH Paediatric Clinical Guideline 2009, July 2011, annotated March 2013